BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

BOARD OF DIRECTORS' REGULAR MEETING

December 6, 2006

A meeting of the Bay Area Air Quality Management District Board of Directors will be held at 9:30 a.m. in the 7th floor Board Room at the Air District headquarters, 939 Ellis Street, San Francisco, California.

Questions About an Agenda Item

The name, telephone number and e-mail of the appropriate staff person to contact for additional information or to resolve concerns is listed for each agenda item.

Meeting Procedures

The public meeting of the Air District Board of Directors begins at 9:30 a.m. The Board of Directors generally will consider items in the order listed on the agenda. However, any item may be considered in any order.

After action on any agenda item not requiring a public hearing, the Board may reconsider or amend the item at any time during the meeting.

BOARD OF DIRECTORS' REGULAR MEETING
A G E N D A

WEDNESDAY **BOARD ROOM**
DECEMBER 6, 2006 **7TH FLOOR**

9:30 A.M.

CALL TO ORDER

Opening Comments — Gayle B. Uilkema, Chair
Roll Call — Clerk of the Boards
Pledge of Allegiance
Swearing in of Board Member

PUBLIC COMMENT PERIOD

Public Comment on Non-Agenda Items, Pursuant to Government Code Section 54954.3 *Members of the public are afforded the opportunity to speak on any agenda item. All agendas for regular meetings are posted at District headquarters, 939 Ellis Street, San Francisco, CA, at least 72 hours in advance of a regular meeting. At the beginning of the regular meeting agenda, an opportunity is also provided for the public to speak on any subject within the Board's subject matter jurisdiction. Speakers will be limited to three (3) minutes each.*

PROCLAMATION/COMMENDATION

The Board of Directors' will recognize the Honorable Mark DeSaulnier for his dedicated leadership, and service to air quality in the Bay Area.

Presentation of Resolution from the City Council of the City of El Cerrito endorsing the California Greenhouse Gas Emission Reduction Targets at the Air District's Climate Protection Summit, November 10, 2006.

CONSENT CALENDAR (ITEMS 1 – 6)

Staff/Phone (415) 749-

1. Minutes of November 1, 2006 — **M. Romaidis/4965** mromaidis@baaqmd.gov

2. Communications — **J. Broadbent/5052** jbroadbent@baaqmd.gov

   Information only

3. District Personnel on Out-of-State Business Travel — **J. Broadbent/5052** jbroadbent@baaqmd.gov

   In accordance with Section 5.4 (b) of the District's Administrative Code, Fiscal Policies and Procedures Section, the Board is hereby notified that the attached memoranda lists District personnel who traveled on out-of-state business.

4. Notice of Proposed Amendments to Air District's Administrative Code Division I Operating Policies and Procedures of the Board of Directors Sections 6: Board of Directors: Committees - Establishing a Climate Protection Committee **J. Broadbent/5052** **jbroadbent@baaqmd.gov**

Air District notice of proposed amendments to the Administrative Code Division I, Section 6.2: Standing Committees (h), (i), (j), and Sections 6.9-6.14 for approval at the Board of Directors' next regularly scheduled meeting, to establish a Climate Protection Committee.

5. Consider Establishing a New Classification of Senior Air Quality Technician at Salary Set Range 130 **J. Broadbent/5052** **jbroadbent@baaqmd.gov**

The Board of Directors will consider approval of establishing a new classification of Senior Air Quality Technician at salary set Range 130 effective as of the date of Board approval.

6. Consideration of Proposed 2007 Regulatory Calendar **H. Hilken/4642** **hhilken@baaqmd.gov**

State law requires each Air District to publish a list of potential regulatory measures for the upcoming year. No regulatory measures can be brought before the Board that is not on the list, with specified exceptions. Consequently, the list contains all measures that ***may*** *come before the Board in 2007*

COMMITTEE REPORTS AND RECOMMENDATIONS

7. Report of the **Mobile Source Committee** Meeting of November 20, 2006

CHAIR: T. SMITH **J. Broadbent/5052** **jbroadbent@baaqmd.gov**

Action (s): The Committee recommends Board of Directors' approval of staff recommendations for fiscal year (FY) 2006/2007 Transportation Fund for Clean Air (TFCA) Regional Fund grant awards listed in Attachment 1 in the packet, totaling $12,350,489.

8. Report of the **Nominating Committee** Meeting of November 21, 2006

CHAIR: G. UILKEMA **J. Broadbent/5052** **jbroadbent@baaqmd.gov**

Action (s): The Committee will recommend appointment of Board Officers for the 2007 term of office.

9. Report of the **Stationary Source Committee** Meeting of November 28, 2006

CHAIR: J. SILVA **J. Broadbent/5052** **jbroadbent@baaqmd.gov**

10. Report of the **Personnel Committee** Meeting of December 4, 2006

CHAIR: P. KWOK **J. Broadbent/5052** **jbroadbent@baaqmd.gov**

Action (s): *The Committee may recommend Board of Directors' approval of appointment of candidates to fill nine(9) positions on the Advisory Council effective December 31 2006 – December 31, 2008.*

PUBLIC HEARING

11. Public Hearing to Consider Proposed Amendments to Regulation 9, Rule 9: Nitrogen Oxides from Stationary Gas Turbines and Adoption of a California Environment Quality Act (CEQA) Negative Declaration **H. Hilken/4642**
hhilken@baaqmd.gov

The proposed amendments to Regulation 9, Rule 9 will reduce emissions of nitrogen oxides (NOx) from stationary gas turbines.

CLOSED SESSION

12. Conference with Legal Counsel

A) Threat of Litigation Government Code Section 54956.9(b))

Tort Claim of Hornblower Cruises & Events against the California Air Resources Board, Bay Area Air Quality Management District and David Burch (received October 27, 2006)

OPEN SESSION

OTHER BUSINESS

13. Report of the Executive Officer/APCO

14. Chairperson's Report

15. Board Members' Comments

Any member of the Board, or its staff, on his or her own initiative or in response to questions posed by the public, may: ask a question for clarification, make a brief announcement or report on his or her own activities, provide a reference to staff regarding factual information, request staff to report back at a subsequent meeting concerning any matter or take action to direct staff to place a matter of business on a future agenda. (Gov't Code § 54954.2)

16. Time and Place of Next Meeting - 9:45 a.m., Wednesday, December 20, 2006-939 Ellis Street, San Francisco, CA 94109

17. Adjournment

CONTACT CLERK OF THE BOARD - 939 ELLIS STREET SF, CA 94109

(415) 749-4965
FAX: (415) 928-8560
BAAQMD homepage:
www.baaqmd.gov

- To submit written comments on an agenda item in advance of the meeting.
- To request, in advance of the meeting, to be placed on the list to testify on an agenda item.
- To request special accommodations for those persons with disabilities. Notification to the Clerk's Office should be given at least 3 working days prior to the date of the meeting so that arrangements can be made accordingly.

AGENDA: 1

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chair Gayle B. Uilkema
and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 27, 2006

Re: Board of Directors' Draft Meeting Minutes

RECOMMENDED ACTION:

Approve attached draft minutes of the Board of Directors meeting of November 1, 2006.

DISCUSSION

Attached for your review and approval are the draft minutes of the November 1, 2006 Board of Directors' meeting.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

AGENDA: 1

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 ELLIS STREET – SAN FRANCISCO, CA 94109

Draft Minutes: Board of Directors' Regular Meeting – November 1, 2006

Call To Order

Opening Comments: Chair Gayle B. Uilkema called the meeting to order at 9:46 a.m.

Pledge of Allegiance: The Board of Directors recited the Pledge of Allegiance.

Roll Call: Present: Gayle B. Uilkema, Chair, Tom Bates, Harold Brown, Chris Daly, Mark DeSaulnier, Dan Dunnigan, Erin Garner, Scott Haggerty Jerry Hill, Yoriko Kishimoto, Carol Klatt, Liz Kniss (10:00 a.m.), Patrick Kwok, Janet Lockhart, Jake McGoldrick, Mark Ross, Michael Shimansky, John Silva, Pamela Torliatt (9:52 a.m.), Brad Wagenknecht.

Absent: Nate Miley, Tim Smith.

Proclamation/Commendation: There were none.

Public Comment Period: There were none:

Consent Calendar (Items 1 – 6)

1. Minutes of October 18, 2006

2. Communications. Correspondence addressed to the Board of Directors. For information only.

3. District Personnel on Out-of-State Business Travel

   In accordance with Section 5.4 (b) of the District's Administrative Code, Fiscal Policies and Procedures Section, the Board was notified by memoranda the list of District personnel who traveled on out-of-state business.

4. Consider Authorization for Execution of Purchase Order in Excess of $70,000 Pursuant to Administrative Code Division II Fiscal Policies and Procedures Section 4.3 Contract Limitations

   The Board of Directors considered authorizing the Executive Officer/APCO to execute a purchase order to FLIR Systems, for the purchase of a handheld Infra Red (IR) video camera in an amount not to exceed $96,068.

5. Consider Adjusting the District's Maximum Medical Contribution Declared to California Public Employees' Retirement System (CalPERS)

The Board of Directors considered approval of a resolution adjusting the District's Maximum Medical Contribution declared to CalPERS for management, confidential, represented, and miscellaneous employees and retirees.

6. Set Public Hearing for December 6, 2006 to Consider Proposed Amendments to Regulation 9, Rule 9: Nitrogen Oxides from Stationary Gas Turbines and Adoption of a California Environmental Quality Act (CEQA) Negative Declaration

The proposed amendments to Regulation 9, Rule 9 implement control measure SS-14 from the Bay Area 2005 Ozone Strategy. They would set up more stringent limits for emissions of nitrogen oxides (NOx) from stationary gas turbines used for electrical generation, steam and mechanical power.

Board Action: Director Brown moved approval of the Consent Calendar; seconded by Director Kwok; carried unanimously without objection with the following Board members voting:

AYES: Bates, Brown, Daly, DeSaulnier, Dunnigan, Garner, Haggerty, Hill, Kishimoto, Klatt, Kwok, Lockhart, McGoldrick, Ross, Shimansky, Silva, Wagenknecht, Uilkema.

NOES: None.

ABSENT: Kniss, Miley, Smith, Torliatt.

Adopted Resolution No. 2006-16: A Resolution Fixing the Employees' Contribution Under the Public Employees' Medical and Hospital Care Act

Committee Reports and Recommendations

7. Report of the Legislative Committee Meeting of October 19, 2006

Director Garner presented the report and stated that the Committee met on Thursday, October 19, 2006.

Staff presented a summary of the recently concluded year in Sacramento and highlighted the outcome of measures on which the District had adopted positions. The Air District sponsored one bill on smoking vehicles and smog check (AB 1870—Lieber) and had formal positions on 13 other measures.

The Committee discussed potential legislative measures for the District's 2007 legislative agenda. These included: 1) a variety of strategies to cut emissions at the Port of Oakland and reduce exposures of surrounding communities to diesel PM; 2) funds for transit subsidy on Spare the Air Days; 3) assessing extra bridge tolls, gasoline refueling fees, and other assessments on Spare the Air days; 4) curtailing certain stationary source emissions on Spare the Air Days; 5) regulation of HVAC systems in large developments and schools to improve

indoor air quality; and 6) mitigating open storage and evaporation of exposed organic liquids at remediation sites.

The next Committee meeting will be at the Call of the Chair.

Board Action: Director Garner moved that the Board of Directors' approve the report of the Legislative Committee; seconded by Director Wagenknecht; carried unanimously without objection.

8. Report of the Budget and Finance Committee Meeting of October 30, 2006

Action(s): The Committee recommended Board of Directors' approval of the following:

A) Designation of a Reserve for Climate Protection Grant program and funding of Reserve with a transfer of $3,000,000 from the Reserve for Radio Replacement; and

B) Addition of a line item to the FY 06/07 Planning and Research Professional Services Program 608 in the amount of $300,000 for the Climate Protection Summit, and increase the Planning and Research Professional Services Program 608 in the amount of $200,000 to recognize sponsorship income for this event, with the balance of the cost covered by the current budget.

Director Daly presented the report and stated that the Committee met on Monday, October 30, 2006.

Staff reviewed the reallocation of reserves for funding the Climate Protection Grant Program. The Committee recommends that the Board of Directors designate a Reserve for the Climate Protection Grant Program and fund the new Reserve with a transfer of $3,000,000 from the Reserve for Radio Replacement.

The Committee received an overview of additional funding expected from the receipt of sponsorships for the Climate Protection Summit and staff recommended amending the fiscal year 2006/2007 budget to recognize the additional revenue from these sponsors. The Committee recommends that the Board of Directors add a line item to the fiscal year 2006/2007 Planning and Research Professional Services Program 608 in the amount of $300,000 for the Climate Protection Summit, and increase the Planning and Research Professional Services Program 608 in the amount of $200,000, and correspondingly add a revenue line item of $200,000 to recognize sponsorship income for this event, with the balance of the cost covered by the current budget.

Finally, as requested, staff presented additional information to the Committee regarding the replacement of the Field Communication System.

The next meeting of the Committee is scheduled for 9:45 a.m., Wednesday, November 22, 2006.

Director Daly added that the Committee discussed other designated reserves and undesignated reserves and considered if the $3,000,000 figure for the Climate Protection

Grant program could be increased. The Committee determined that the $3,000,000 is appropriate at this time.

Director Pamela Torliatt arrived at 9:52 a.m.

Board Action: Director Daly moved that the Board of Directors approve the recommendations and the report of the Budget and Finance Committee; seconded by Director Haggerty.

Jack Broadbent, Executive Officer/APCO, noted that there was an error in the report in the agenda packet with regard to action A in that the amount of the transfer should be $3,000,000 and not $300,000. The motion then passed unanimously without objection.

Closed Session The Board convened to Closed Session at 9:55 a.m.

Director Kniss arrived at 10:00 a.m.

9. Conference with District's Labor Negotiators
(Government Code § 54957.6(a)

Agency Negotiators:	*Jack P. Broadbent, Executive Officer/APCO* *Michael Rich, Human Resources Officer*
Employee Organization:	*Bay Area Air Quality Management District Employees' Association, Inc.*

10. Conference with Legal Counsel

A) Existing Litigation Government Code Section 54956.9(a)

Pursuant to Government Code Section 54956.9(a), a need existed to meet in closed session with legal counsel to consider the following case:

***Bay Area AQMD v. Pacific Steel Casting Company, et al.**, Alameda County Superior Court, Case No. RGO6284043*

B) Threat of Litigation Government Code Section 54956.9(b)

Tort Claim of Patricia Howell against the Bay Area Air Quality Management District, and individually against Michael Rich, Mary Ann Goodley, Diane Iwata, Doe 1, and Integrity Support Services, Inc./Employee Screening Resources (ISS) (received 09/27/06)

Open Session: The Board reconvened to open session at 10:15 a.m.

Brian Bunger, Legal Counsel, reported that the Board met in closed session with counsel and labor representative on item 9 and that the Board provided general direction on the matter. On item 10 A, the Board heard a report on the Pacific Steel Casting case and gave general

direction. On item 10 B the Board considered the Tort claim of Patricia Howell against the District and decided unanimously to reject the claim.

Other Business

12. Chairperson's Report – Chair Uilkema reported on the following items:

A) Requested Board members RSVP for the Climate Protection Summit if they have not already done so.
B) The November 13th Mobile Source Committee meeting has been rescheduled and the new date, as yet to be confirmed, is November 20th.
C) The Personnel Committee meeting is confirmed for December 4th.
D) The Board Executive Committee meeting is confirmed for December 21st.
E) The November 15th Board meeting is cancelled.
F) The next Board meeting is scheduled for December 6th.
G) Appointments to the Nominating Committee are as follows: The Chair of the Board and Directors Kishimoto, Smith, Lockhart, and Garner.
H) If a Board member would like to be nominated, they should submit a letter to the Chair or any of the members of the Nominating Committee.
I) The Nominating Committee will meet on November 21st and will report out at the December 6th Board meeting. The Committee will receive a copy of the appropriate section of the Administrative Code.

Director Kniss noted that the California State Association of Counties (CSAC) is meeting on December 6th.

11. Report of the Executive Officer/APCO – Mr. Broadbent reviewed the following:

A) Staff will follow-up with the Board members attending the Summit to confirm the names of guests for the check-in process at the Summit.
B) Provided a summary of the 2006 Ozone season (preliminary data through October 16th) and $PM_{2.5}$ measurements in recent years.
C) Introduced two new managers in the Outreach and Incentives Division. Karen Schkolnick, agency spokesperson and Richard Lew, community outreach.

13. Board Members' Comments – Director DeSaulnier noted that John Gioia will be his replacement on the Board of Directors.

14. Time and Place of Next Meeting – 9:45 a.m., Wednesday, December 6, 2006 – 939 Ellis Street, San Francisco, CA 94109

15. Adjournment – The meeting adjourned at 10:34 a.m.

Mary Romaidis
Clerk of the Boards

AGENDA: 2

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chair Gayle B. Uilkema
and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 27, 2006

Re: Board Communications Received from November 1, 2006 through December 5, 2006

RECOMMENDED ACTION:

Receive and file.

DISCUSSION

A list of Communications received by the Air District from November 1, 2006 through December 5, 2006, if any, will be at each Board member's place at the December 6, 2006 Regular Board meeting.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

BAY AREA AIR QUALITY MANGEMENT DISTRICT
Memorandum

To: Chair Gayle B. Uilkema and Members
of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 21, 2006

Re: District Personnel on Out-of-State Business Travel

RECOMMENDED ACTION:
Receive and file.

BACKGROUND

In accordance with Section 5.4 (b) of the District's Administrative Code, Fiscal Policies and Procedures Section, the Board is hereby notified that the following District personnel have traveled on out-of-state business.

DISCUSSION

Kelly Wee, Compliance and Enforcement Division Director, attended a VOC Fugitive Losses – New Monitors, Higher Emissions, and Potential Policy Gaps Workshop in Durham, NC October 25 – 27, 2006

Peter Hess, Deputy Air Pollution Control Officer, attended an Air and Waste Management Association (A&WMA) Executive Committee meeting in Pittsburgh, PA November 2 - 5, 2006. Travel expenses were paid by A&WMA.

Eric Stevenson, Air Monitoring Manager and Mark Stoelting, Principal Air/Meteorology Monitoring Specialist, attended a STAPPA/ALAPCO Air Monitoring Conference in Las Vegas, NV November 5 – 9, 2006.

Peter Hess, Deputy Air Pollution Control Officer, was the keynote speaker at the A&WMA Pacific Northwest International Section Annual Environmental Conference & Meeting with the Canadian Ministry of Environment in Victoria, British Columbia November 7 - 10, 2006. Travel expenses were paid by A&WMA.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Michael White
Reviewed by: Jeff McKay

AGENDA: 4

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chair Gayle B. Uilkema
and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 29, 2006

Re: Notice of Proposed Amendments to the Air District's Administrative Code, Division I Operating Policies and Procedures of the Board of Directors, Section 6: Establishing a Climate Protection Committee

RECOMMENDED ACTION

Notice of Proposed Amendments to the Air District's Administrative Code, Division I Operating Policies and Procedures of the Board of Directors Section 6.2 Standing Committees (h), (i), (j), and Sections: 6.9-6.14 establishing a Climate Protection Committee; all other changes are re-ordering of existing sections. The proposed revisions are indicated in underline and strikethrough in the attached proposal.

BACKGROUND

In accordance with provisions of the Administrative Code governing amendments to the Code, notice is hereby given at the Board of Directors regular meeting of December 6, 2006, that the Board of Directors will consider at its next regular meeting amendment of the code to establish a Climate Protection Standing Committee.

The Ad Hoc Climate Protection Committee met on October 12, 2006, and considered and recommended approval of the establishment of a Climate Protection Standing Committee of the Board of Directors. The Board of Directors at its October 18, 2006, regular meeting unanimously approved the recommendation of the Ad Hoc Climate Protection Committee to establish a Climate Protection Standing Committee.

DISCUSSION

This noticing action will start the process of amending the Air District's Administrative Code to create a new Standing Committee of the Board of Directors designated the Climate Protection Committee.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Mary Ann Goodley
Reviewed by: Brian Bunger

Proposed Amendments to Administrative Code Division 1 Operating Policies and Procedures of the Board of Directors Section 6: Establishing a Climate Protection Standing Committee

SECTION 6 BOARD OF DIRECTORS, COMMITTEES

6.2 STANDING COMMITTEES. (Revised 5/3/00)

Standing Committees of the Board of Directors shall be the following:

(a) Executive Committee, consisting of the Chairperson of the Board, who shall be Chairperson of the Committee, the Vice-Chairperson of the Board, the Board Secretary, the last past Chairperson and five (5) other Directors appointed by the Chairperson.

(b) Budget and Finance Committee, consisting of nine (9) Directors appointed by the Chairperson.

(c) Personnel Committee, consisting of nine (9) Directors appointed by the Chairperson.

(d) Legislative Committee, consisting of nine (9) Directors appointed by the Chairperson.

(e) Mobile Source Committee, consisting of nine (9) Directors appointed by the Chairperson.

(f) Public Outreach Committee, consisting of (9) Directors appointed by the Chairperson.

(g) Stationary Source Committee, consisting of nine (9) Directors appointed by the Chairperson.

(h) *Climate Protection Committee, consisting of nine (9) Directors appointed by the Chairperson.*

(i) The Chairperson shall be an ex-officio member of all Standing Committees of the Board of Directors.

~~*(i)*~~*(j)* Each Standing Committee shall have authority to make recommendations to the Board of Directors for action regarding matters within the scope of the Committee's jurisdiction. A standing committee may discuss but may not make recommendations to the Board of Directors regarding issues outside of its jurisdiction and shall refer such matters to the appropriate committee. Except as specified in this Division or as otherwise specified by the Board of Directors, Standing Committees are not delegated decision-making authority.

6.9 ~~QUORUM FOR COMMITTEES. (Revised 12/6/06)~~

~~There is no quorum requirement for a Committee meeting to be held, except that, for the purpose of making a Committee recommendation to the Board of Directors, there is established a quorum of five (5) Committee members.~~

MOBILE SOURCE COMMITTEE. (Revised 3/18/98)

It is the function of the Mobile Source Committee to consider and recommend policies and positions of the District relating to transportation planning and funding, on-road and off-road mobile sources, and mobile source fuels. The Mobile Source Committee will keep itself informed on actions or proposed actions by local, regional, state and federal agencies affecting air pollutant emissions from mobile sources.

6.10 ~~**COMMITTEE PROCEDURE. (Revised 12/6/06)**~~

~~a)Voting. Only members of the Committee shall be allowed to vote on Committee recommendations.~~

~~*b)a)* Minority Report. Any Committee member can submit a Minority Report to accompany the Committee recommendation submitted to the Board of Directors, but may not use District staff to prepare such report.~~

PUBLIC OUTREACH COMMITTEE

It is the function of the Public Outreach Committee to give overall direction to the District's public outreach program. In addition, the Committee hears proposals and makes recommendations to the Board of Directors regarding the selection of a contractor(s) to assist the District with aspects of the public outreach program. The Committee consists of Board members who vote on issues that come before the Committee.

6.11 ~~**MOBILE SOURCE COMMITTEE. (Revised 3/18/98)**~~

~~It is the function of the Mobile Source Committee to consider and recommend policies and positions of the District relating to transportation planning and funding, on-road and off-road mobile sources, and mobile source fuels. The Mobile Source Committee will keep itself informed on actions or proposed actions by local, regional, state and federal agencies affecting air pollutant emissions from mobile sources.~~

STATIONARY SOURCE COMMITTEE. (Revised12/6/06)

It is the function of the Stationary Source Committee to consider and recommend policies to the Board of Directors relating to stationary sources. The Committee shall recommend to the Board of Directors stationary source policy issues affecting the implementation of the State and Federal Air Quality Management Plans and key planning policy issues such as federal and State Air Quality Management Plan development and air quality and economic modeling. The Stationary Source Committee shall review and make recommendations to the Board of Directors regarding major stationary source programs including: permitting, compliance, small business assistance, toxics, source education, and rule development. The Stationary Source Committee shall recommend to the Board of Directors positions concerning federal and state regulations that affect stationary sources. The Stationary Source Committee shall recommend policies to the Board of Directors for disbursal of supplemental environmental project grants.

6.12 ~~**PUBLIC OUTREACH COMMITTEE**~~

~~It is the function of the Public Outreach Committee to give overall direction to the District's public outreach program. In addition, the Committee hears proposals and makes recommendations to the Board of Directors regarding the selection of a contractor(s) to assist the District with aspects of the public outreach program. The Committee consists of Board members who vote on issues that come before the Committee.~~

CLIMATE PROTECTION COMMITTEE

It is the function of the Climate Protection Committee to consider and recommend to the Board of Directors policies and positions of the District relating to climate protection activities and funding. The Climate Protection Committee will keep itself informed on actions and proposed actions by local, regional, state, federal, and international agencies and organizations relating to climate protection.

6.13 ~~**STATIONARY SOURCE COMMITTEE. (Revised 2/19/03)**~~

~~It is the function of the Stationary Source Committee to consider and recommend policies to the Board of Directors relating to stationary sources. The Committee shall recommend to the Board of Directors stationary source policy issues affecting the implementation of the State and Federal Air Quality Management Plans and key planning policy issues such as federal and State Air Quality Management Plan development and air quality and economic modeling. The Stationary Source Committee shall review and make recommendations to the Board of Directors regarding major stationary source programs including: permitting, compliance, small business assistance, toxics, source education, and rule development. The Stationary Source Committee shall recommend to the Board of Directors positions concerning federal and state regulations that affect stationary sources. The Stationary Source Committee shall recommend policies to the Board of Directors for disbursal of supplemental environmental project grants.~~

QUORUM FOR COMMITTEES. (Revised 12/6/06)

There is no quorum requirement for a Committee meeting to be held, except that, for the purpose of making a Committee recommendation to the Board of Directors, there is established a quorum of five (5) Committee members.

6.14 ***COMMITTEE PROCEDURE (REVISED 12/6/06)***

a) Voting. Only members of the Committee shall be allowed to vote on Committee recommendations.

b) Minority Report. Any Committee member can submit a Minority Report to accompany the Committee recommendation submitted to the Board of Directors, but may not use District staff to prepare such report.

AGENDA: 5

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chair Gayle B. Uilkema
and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 27, 2006

Re: Consider Establishing a New Classification of Senior Air Quality Technician with a Salary Set at Pay Range 130 Effective as of the Date of Board Approval

RECOMMENDATION

Approve establishing a new job classification of Senior Air Quality Technician with a salary set at Pay Range 130. This classification creates an advanced level technical position which will provide lead direction, training, and work review to Air Quality Technicians and perform the more difficult or complex administrative and technical assignments in support of existing enforcement or transportation/air quality program activities.

BACKGROUND

The current budget for FY 2006-07 provides for one position upgrade from an Air Quality Technician to a Senior Air Quality Technician. The Human Resources Office has completed discussions with the Employees' Association on the job classification description and pay level for the new job classification of Senior Air Quality Technician. The Board of Directors' approval of the new classification and the attached draft job description is needed in order for the position to be added to the classification system.

Currently, this advanced technician position will be used by the Compliance and Enforcement Division. This position will provide lead direction to journey level technicians and bring advanced technical knowledge and judgment to bear on technical enforcement program support activities such as data quality control, procedure development and documentation. The Senior Air Quality Technician classification would also be available for use by other divisions, should the need arise.

BUDGET CONSIDERATION/FINANCIAL IMPACT

There is no financial impact beyond that already contemplated during approval of the current budget.

Respectfully Submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Michael Rich

SENIOR AIR QUALITY TECHNICIAN

DEFINITION

Under general supervision, provides lead direction and performs the more complex administrative and technical work related to enforcement program activities or transportation/air quality program activities; performs related work as assigned.

DISTINGUISHING CHARACTERISTICS

This is the advanced level in the air quality technician series. Incumbents will provide lead direction and perform the more difficult or complex administrative and technical work related to existing enforcement programs or transportation/air quality program activities that require considerable technical knowledge and use of independent judgment. This is not considered a supervisory class in that selection, discipline and evaluation of employees is not assigned to this level.

EXAMPLES OF DUTIES (Illustrative Only)

Provides lead direction, training and technical work review for technical and support staff; prioritizes, organizes and follows up on work assignments to ensure timely completion.

Develops and prepares procedures for technical and support staff tasks.

Provides input into hiring and promotional selection decisions.

Performs difficult or complex technical work related to enforcement programs or transportation/air quality programs and assists with special projects as assigned.

Responds, orally and in writing to procedural, regulatory and technical questions and requests regarding specific enforcement programs or transportation/air quality programs to District staff, industry, the public and other agencies.

Coordinates and performs review and verification of data entry for specified enforcement programs or transportation/air quality programs; corrects or provides for the correction of errors to assure the quality and validity of data entered into and extracted from data bases.

Receives, logs and responds to telephone calls and visitors with questions about specific enforcement programs or transportation/air quality programs.

Receives, logs, reviews, processes, evaluates transportation/air quality program surveys, reports, and grant applications in accordance with established procedures and in compliance with regulations.

Coordinates and monitors the processing of rules being adopted or amended.

Schedules, attends, and takes notes at public workshops.

Performs emergency notification acquisition for specific enforcement functions.

Uses software to develop and maintain a master database of names and addresses for mailing lists.

Reviews technical reports and provides recommendations.

May prepare violation notices.

Uses standard statistical methods and established computer programs to prepare summary statistics and special reports, including graphic presentations.

Composes correspondence independently; establishes and maintains detailed records and files; researches and compiles information from office files and other sources.

Compiles data and prepares periodic and special reports.

QUALIFICATIONS

Knowledge of:

Basic lead/supervisory principles and practices.

Policies and procedures of assigned technical programs.

Basic principles, methods and techniques of research, data analysis and statistics.

Business arithmetic, including percentages and decimals.

Correct English usage, including spelling, grammar and punctuation.

Basic business and data processing principles and the use of word processing and personal computer equipment.

Record-keeping principles and procedures.

Applicable district, state and federal laws, rules and regulations.

Skill in:

Planning, assigning, directing and reviewing the work of others.

Training others in work procedures.

Organizing, coordinating and prioritizing work activities while meeting crucial deadlines.

Learning, understanding and applying technical rules and regulations.

Maintaining accurate records and organizing, researching and maintaining office files.

Applying standard statistical methods.

Ability to communicate effectively orally and in writing.

Preparing clear and concise reports, data summaries and other written and graphic documents.

Using initiative and sound independent judgment within established guidelines.

Operating standard office equipment, including a personal computer.

Establishing and maintaining effective working relationships with those contacted in the course of the work.

Other Requirements:

Specified positions may require possession of a valid California driver's license.

Education and Experience:

A typical way to obtain the knowledge and skills is:

Equivalent to an associate degree in planning, environmental science, transportation, meteorology, computer science, mathematics or closely related field, and five years of experience in the administrative and technical processing of enforcement programs or transportation/air quality programs.

Pay Range Recommended: 130

AGENDA: 6

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chair Gayle B. Uilkema
and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer / APCO

Date: November 27, 2006

Re: 2007 Regulatory Calendar

RECOMMENDED ACTION:

Receive and file.

DISCUSSION

Each year, the District is required by Health and Safety Code section 40923 to publish a list of regulatory measures scheduled or tentatively scheduled for consideration during the next calendar year. If a measure is not on this list, it may not be brought before the Board unless it is necessary (1) to satisfy federal requirements, (2) to abate a substantial endangerment to public health or welfare, (3) to comply with state toxic air contaminant requirements, (4) to comply with an ARB requirement that the District adopt contingency measures due to inadequate progress towards attainment, (5) to preserve an existing rule's "original intent," or (6) to allow for alternative compliance under an existing rule.

The attached list includes all measures that may come before the Board in 2007. Some of the measures fall within exceptions listed above but are nevertheless included for completeness. Control measures from the 2005 Ozone Strategy and the SB 656 Particulate Matter Implementation Schedule are included. There is no expectation that all of the measures on the list will be enacted during the calendar year. Rules are listed in numerical order as they appear in the District Rules and Regulations.

All new rules and rule amendments must be adopted at a public hearing conducted by the District's Board of Directors. Public comment is accepted at these hearings. Public notice of hearings is provided as required by law. In addition, the District conducts public workshops and provides opportunities for oral and written comments before scheduling a rule for public hearing. Information on workshops, hearings, and other rule development issues may be obtained from the District website at www.baaqmd.gov/pln/ruledev/index.asp or by calling the Planning, Rules and Research Division at (415) 749-4664.

BUDGET CONSIDERATION/FINANCIAL IMPACTS

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer / Air Pollution Control Officer

Prepared by: Daniel Belik
Approved by: Henry Hilken

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
2007 REGULATORY MEASURES LIST

Control Measure [1]	Regulation, Rule	Title	Objective [2]
	Reg. 1	General Provisions and Definitions	Clarifications, commercial cooking equipment, wood smoke particulate matter control
	Reg. 2, Rule 1	General Requirements (Permits)	EPA, CARB policy; State law, clarifications, commercial cooking equipment, wood smoke particulate matter control
	Reg. 2, Rule 2	New Source Review	EPA policy, State law
	Reg. 2, Rule 4	Emissions Banking	Clarifications
	Reg. 2, Rule 5	New Source Review for Toxic Air Contaminants	Clarifications
	Reg. 2, Rule 6	Major Facility Review (Title V)	EPA policy, clarifications
	Reg. 2, Rule 9	Interchangeable Emission Reduction Credits	Clarifications
FS-18	Reg. 3	Fees	Cost recovery, mitigate impacts of indirect and federal sources
	Reg. 5	Open Burning	Clarifications, reduce emissions
PM, FS-3	Reg. 6, Rule 2	Commercial Cooking Equipment	Reduce particulate, VOC emissions
	Reg. 6, Rule TBD	Wood Smoke Particulate Matter Control	Reduce particulate emissions
	Reg. 7	Odorous Substances	Clarifications
	Reg. 8, All	General Provisions	Applicability, VOC definition
	Reg. 8, Rule 2	Miscellaneous Operations	Clarifications
FS-2	Reg. 8, Rule 3	Architectural Coatings	Clarifications; reduce organic emissions
FS-8	Reg. 8, Rule 4	General Solvent and Surface Coating Operations	Reduce organic emissions
	Reg. 8, Rule 6	Organic Liquid Bulk Terminals and Bulk Plants	Clarifications
	Reg. 8, Rule 7	Gasoline Dispensing Facilities	Reduce organic emissions
FS-8	Reg. 8, Rule 16	Solvent Cleaning Operations	Clarifications, reduce organic emissions
	Reg. 8, Rule 17	Petroleum Dry Cleaning Operations	Reduce organic emissions
FS-12	Reg. 8, Rule 18	Equipment Leaks	Reduce organic emissions
SS-2	Reg. 8, Rule 20	Graphic Arts Operations	Clarifications, reduce organic emissions
	Reg. 8, Rule 22	Valves and Flanges at Chemical Plants	Clarifications
SS-10	Reg. 8, Rule 28	Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants	Reduce organic emissions, flexibility
SS-5	Reg. 8, Rule 32	Wood Products Coatings	Reduce organic emissions

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
2007 REGULATORY MEASURES LIST

Control Measure [1]	Regulation, Rule	Title	Objective [2]
SS-7	Reg. 8, Rule 33	Gasoline Bulk Terminals and Gasoline Delivery Vehicles	Reduce organic emissions, clarifications
SS-7	Reg. 8, Rule 39	Gasoline Bulk Plants and Gasoline Delivery Vehicles	Reduce organic emissions, clarifications
	Reg. 8, Rule 40	Aeration of Contaminated Soil and Removal of Underground Storage Tanks	Clarifications
SS-1	Reg. 8, Rule 45	Motor Vehicle and Mobile Equipment Coating Operations	Reduce organic emissions
	Reg. 8, Rule 49	Aerosol Paint Products	Consider deletion of rule due to ARB standards
SS-4	Reg. 8, Rule 50	Polyester Resin Operations	Reduce organic emissions
FS-1	Reg. 8, Rule 51	Adhesive and Sealant Products	Reduce organic emissions
	Reg. 8, Rule 52	Polystyrene, Polypropylene and Polyethylene Foam Product Mfg Ops.	Clarifications
SS-3	Reg. 8, Rule TBD	High Emitting Spray Booths	Reduce organic emissions
FS-4	Reg. 8, Rule TBD	Composting Operations	Reduce organic emissions
FS-5	Reg. 8, Rule TBD	Food Product Manufacturing Operations	Reduce organic emissions
FS-6	Reg. 8, Rule TBD	Livestock Waste	Reduce organic emissions
	Reg. 8, Rule TBD	Episodic Controls	Reduce organic emissions
FS-9	Reg. 8, Rule TBD	Cooling Towers	Reduce organic emissions
FS-11	Reg. 8, Rule TBD	Vacuum Trucks	Reduce organic emissions
FS-13	Reg. 8, Rule TBD	Wastewater from Coke Cutting	Reduce organic emissions
	Reg. 9, Rule 1	Sulfur Dioxide	Monitoring, recording requirements
	Reg. 9, Rule 2	Hydrogen Sulfide	Monitoring, recording requirements
SS-13	Reg. 9, Rule 6	NOx from Natural Gas-Fired Water Heaters	Reduce NOx emissions
SS-12	Reg. 9, Rule 7	NOx and CO from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters	Clarifications; reduce NOx emissions
PM, FS-15	Reg. 9, Rule 8	NOx and CO From Stationary Internal Combustion Engines	Reduce NOx, particulate emissions
FS-14	Reg. 9, Rule 10	NOx and CO From Boilers, Steam Generators And Process Heaters in Petroleum Refineries	Clarifications, reduce NOx emissions
	Reg. 11	Hazardous Air Pollutants	Reference federal standards
	Reg. 11, Rule 2	Asbestos Demolition, Renovation and Manufacturing	Clarifications
	Reg. 11, Rule 14	Asbestos-Containing Serpentine	Clarifications
	Reg. 11, Rule 16	Perchloroethylene Dry Cleaners	Incorporate CARB rule
	Reg. 12, Rule 7	Motor Vehicle Air Conditioners	Clarifications
	Reg. 12, Rule 11	Flare Monitoring at Petroleum Refineries	Clarifications
FS-18	Reg. and Rule TBD	Indirect Source Mitigation	Reduce organic, NOx, particulate emissions
	MOP, Volume I	Enforcement Procedures	Clarification, improve data submittals

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
2007 REGULATORY MEASURES LIST

Control Measure [1]	Regulation, Rule	Title	Objective [2]
	MOP, Volume II	Engineering Permitting Procedures	Consistency with EPA requirements, clarifications
	MOP, Volume III	Laboratory Methods	New and improved analytical procedures
	MOP, Volume IV	Source Test Methods	New and improved analytical procedures
	MOP, Volume V	Continuous Emission Monitoring	New and improved analytical procedures
	MOP, Volume VI	Ground Level Monitoring	Consistency with EPA requirements

[1] Control measure numbers given are from the Bay Area 2005 Ozone Strategy.
SS = stationary source control measure, FS = further study measure
PM denotes control measures from the PM Implementation Schedule.

[2] Objectives are listed for information only and are subject to change. Rule development efforts for a rule are not limited to listed objectives.

AGENDA: 7

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chair Gayle B. Uilkema
and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 28, 2006

Re: Report of the Mobile Source Committee Meeting of November 20, 2006

RECOMMENDED ACTIONS

The Mobile Source Committee recommends Board of Director approval of fiscal year (FY) 2006/2007 Transportation Fund for Clean Air (TFCA) Regional Fund grant awards listed in Attachment 1, totaling $12,350,489.

DISCUSSION

The Mobile Source Committee met on Monday, November 20, 2006. The attached item listed above was presented by staff during that meeting.

Chairperson Tim Smith will give an oral report of the meeting.

BUDGET CONSIDERATION/FINANCIAL IMPACTS

None

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Mary Ann Goodley

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Smith and
Members of the Mobile Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 13, 2006

Re: Transportation Fund for Clean Air Regional Fund Grant Awards for Fiscal Year 2006/2007

RECOMMENDED ACTION:

Recommend Board of Directors' approval of staff recommendations for fiscal year (FY) 2006/2007 Transportation Fund for Clean Air (TFCA) Regional Fund grant awards listed in Attachment 1, totaling $12,350,489.

BACKGROUND

The Air District received 90 grant applications totaling $26.7 million in funding requests for the FY 2006/2007 TFCA Regional Fund. Six grant applications were found to be ineligible because they did not meet program policies. Another six grant applications were withdrawn by their sponsors. Fifty-two projects met all the relevant eligibility criteria and qualified for funding.

At the Mobile Source Committee meeting of October 16, 2006, staff put forth two recommended actions for the FY 2006/2007 TFCA Regional Funds. The first regarding funding sources and levels, and the second regarding actual grant awards. The Committee adopted the first recommendation, which was to replace up to approximately $7.4 million in TFCA Regional Funds with the same amount in Mobile Source Incentive Fund revenues for the Air District's Vehicle Buy Back Program, with about $2.7 million contingent on approval of the Metropolitan Transportation Commission (MTC). The Committee also directed staff to list more detailed information about projects not recommended for funding, and to present recommendations for grant awards again at the next Committee meeting.

On October 18, 2006 the Board approved the Committee recommendation regarding funding sources and levels. In addition, MTC has provided the approval required for the allocation of the full amount, approximately $7.4 million, to the TFCA Regional Fund.

Staff is recommending awarding grants totaling up to approximately $12.4 million to 52 eligible projects. Attachment 1 lists the projects recommended for TFCA Regional Fund grant awards.

Additional background information can be found in the staff report for the October 16 Mobile Source Committee meeting, available at http://www.baaqmd.gov/brd/brddirectors/agendas_minutes.htm.

DISCUSSION:

A discussion of the TFCA Regional Fund process follows.

TFCA Regional Fund Schedule

The milestone dates of the grant application and review process are outlined below.

Action	Date
Issue Application Guidance	May 26, 2006
Application Workshop	June 13, 2006
Application Submittal Deadline	July 24, 2006

Evaluation Criteria

The Board-adopted criteria to score and rank TFCA Regional Fund grant applications for FY 2006/2007 are shown in Table 1. The evaluation criteria emphasize cost effectiveness in reducing emissions by allotting 60% of the total possible points to this criterion. Cost effectiveness is calculated by dividing the total TFCA funds proposed for the project by a factor representing the estimated lifetime emission reductions for the project, yielding TFCA funds per ton of reduced emissions. The Board-approved cost effectiveness threshold is currently $90,000/ton of reduced emissions.

Table 1: FY 2006/2007 TFCA Regional Fund Scoring Criteria

Criteria	Maximum Points
1. TFCA Cost Effectiveness	60
2. Greenhouse Gas Emission Reductions	10
3. Other Project Attributes–	10
4. Clean Air Policies and Programs	10
5. Disadvantaged and PM-Impacted Communities	10
Total	100

The Board establishes minimum point scores for projects to be eligible to receive TFCA Regional Funds. For the FY 2006/2007 funding cycle, the minimum scores are 40 points for public-agency projects and 36 points for non-public entity projects. The intent of this policy

is to assure that TFCA funding is provided only to projects that achieve an acceptable level of cost effectiveness and benefit to the region.

Returned Grant Applications

Staff reviewed the grant applications to determine eligibility, based on compliance with all relevant policies adopted by the Board to govern the TFCA Regional Fund. Table 2 provides a list of grant applications that were not evaluated because they were deemed ineligible for funding based on one or more of the Board-adopted policies.

Table 2: Returned Grant Applications

Sponsor	Project	Reason
County of San Francisco	CCSF Telecommuting Program Expansion	Did not comply with TFCA Regional Fund Policy # 1 re: funding of planning activities not directly related to the implementation of a specific project.
County of San Francisco	Transportation Demand Management (TDM) Survey	Did not comply with TFCA Regional Fund Policy # 1 re: funding of planning activities not directly related to the implementation of a specific project.
Port of San Francisco	Fisherman's Wharf Pedestrian Transit Sign Program	Did not comply with TFCA Regional Fund Policy # 1 re: requirement that a project must result in the reduction of motor vehicle emissions.
County of San Francisco	UCSF Class Pass Program	Did not comply with TFCA Regional Fund Policy # 18 re: duplication of existing TFCA-funded projects.
Green Energy Network	Sonoma County Sustainable Transportation Center (Ethanol projects)	Did not comply with TFCA Regional Fund Policy # 27 re: requirement that clean air vehicle infrastructure be for advanced technology.
City of Berkeley	Ashby BART Station / Ed Roberts Campus	Did not comply with TFCA Regional Fund Policy # 31 re: requirement that physical improvements result in motor vehicle emission reductions.

Available Funds

TFCA Regional Funds totaling approximately $12.5 million are available for allocation in FY 2006/2007. These funds consist of anticipated receipts from motor vehicles registered in the Air District during calendar year 2006, interest on TFCA Regional Funds, and a reallocation of funds initially budgeted for the Vehicle Buy Back Program.

Project Funding

Fifty-two projects, totaling approximately $12.4 million in funding requests, achieved the relevant minimum point score and complied with the maximum $90,000 per ton cost-effectiveness threshold.

TFCA Regional Fund revenues are sufficient to fund all 52 qualifying projects listed in Attachment 1, given that approximately $7.4 million in funds initially budgeted for the Vehicle Buy Back Program is being reallocated to the TFCA Regional Fund. As approved by the Board on October 18, 2006, this reallocation will be replaced with an allocation of the same amount, up to approximately $7.4 million, to the Vehicle Buy Back Program, from Mobile Source Incentive Fund revenues.

Attachment 1 lists the final project scores and ranking for the eligible projects. This attachment lists the same projects as the original attachment provided on October 11. This attachment differs slightly from the list originally provided on October 11, in two ways. First, some scores for greenhouse gas emission reductions have been corrected. Second, the projects formerly listed as Contingent Projects are now included without contingency, since MTC has provided approval of the funding uses discussed above in the Background section.

Projects Not Recommended for Funding

Attachment 2 lists the projects that are *not* recommended for funding. As directed by the Mobile Source Committee at the meeting of October 16, 2006, to maximize transparency information on each grant application listed in the original Attachment 2 was expanded to include the same type of information presented in Attachment 1. That expanded information was provided to all grant applicants. As directed by the Committee, staff also carefully reevaluated all projects not recommended for funding to determine if any should actually be recommended for funding, and staff responded to inquiries from grant applicants.

After reevaluating the projects on the original Attachment 2, staff recommends that the same projects not be funded, based on the information provided in the applications. These projects are not recommended for funding because they did not achieve the minimum point score, and all but one did not meet the $90,000/ton cost-effectiveness threshold.

Emission Reductions

The 52 projects recommended for funding will result in estimated emission reductions of 587 tons of ozone precursors and particulate matter (PM), and 60,909 tons of carbon dioxide (CO_2) over the life of the projects. The resulting overall cost effectiveness estimated for these projects is $22,447/ton[a].

[a] TFCA dollars per ton of emissions reduction (ozone precursors and weighted particulate matter). The cost effectiveness calculations used for project evaluation includes a weighted factor of 20 for the reduction of particulate matter emissions.

Grant Allocations Summary

Table 3 shows the funding, by project type, for the 52 projects not administered by the Air District that are recommended to receive TFCA Regional Fund grant awards.

Table 3:
Recommended FY 2006/2007 TFCA Regional Fund Grant Allocations by Project Type

Project Type	No. of Projects	TFCA $	% of Total TFCA Regional Fund $
Retrofit – Diesel	19	$4,152,955	34%
Natural Gas Vehicles	10	$3,083,463	25%
Shuttle Programs	7	$2,305,202	19%
Ridesharing Programs	4	$1,150,400	9%
Repower – Diesel	4	$439,567	4%
Arterial Management	1	$422,731	3%
Smart Growth	1	$351,508	3%
Bicycle Facilities	4	$232,599	2%
Shuttle Bus Replacement	2	$212,064	2%
Totals	**52**	**$12,350,489**	**100%***

* Total may not add to 100% due to rounding.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer /APCO

Prepared by: David Wiley
Reviewed by: Jack M. Colbourn

ATTACHMENT 1
TFCA Regional Fund Grant Applications - FY 2006/2007
Project Scores and Ranking - Projects Recommended for Funding

Proj#	Cnty (1)	P/N (2)	Sponsor	Project Description	Yrs Eff	TFCA $ Per Ton (3)	TFCA $ Awarded	Cumulative Total $	CRITERIA POINT SCORES					
									TFCA Funding Eff	Green-house Gas ER	Other Attrib.	Clean Air Pol.	Disadv. & PM	TOTAL SCORE
06R07	CC	P	City of El Cerrito	Implement pedestrian, bicycle, and transit access improvements and traffic calming measures along San Pablo Avenue between Carlson Boulevard and Macdonald Avenue.	20	$31,375	$351,508	$351,508	54	10	10	10	4	88
06R74	ALA	P	City of Berkeley	Operation of one 24 passenger gasoline shuttle bus route from the Ashby BART station to West Berkeley area employers during morning and afternoon weekday peak periods.	1	$29,916	$20,600	$372,108	55	3	10	10	6	84
06R26	ALA	P	City of Berkeley	Purchase 6 compressed natural gas solid waste collection vehicles.	10	$15,017	$150,000	$522,108	60	7	0	10	5	82
06R32	SF	P	San Francisco International Airport	Purchase 17 compressed natural gas heavy-duty shuttle buses.	7	$22,201	$198,000	$720,108	58	10	0	10	2	80
06R75	SM	P	City of Redwood City	Provide peak period shuttle service to the Redwood City Caltrain Station, downtown area, Fair Oaks neighborhood, and neighborhoods west of El Camino Real, using one diesel bus with an ARB-certified PM filter.	1	$32,386	$14,064	$734,172	53	2	10	10	4	79
06R82	REG	P	Metropolitan Transportation Commission	Implement the Regional Rideshare Program, which provides coordinated carpool and vanpool formation assistance, and information on transportation alternatives such as Bike to Work Day, Rideshare Thursday and Spare the Air.	1	$28,034	$1,000,000	$1,734,172	55	10	0	10	3	78
06R43	SC	P	Eastside Union High School	Repower 2 heavy-duty diesel school buses with cleaner diesel engines.	10	$9,826	$105,926	$1,840,098	60	0	10	2	5	77
06R72	ALA	P	City of Berkeley	Market alternative transportation options to Berkeley residents, employees and students.	1	$22,394	$32,529	$1,872,627	58	4	0	10	5	77
06R45	SC	P	Ravenswood City School	Repower 3 heavy-duty diesel school buses with cleaner diesel engines.	10	$23,382	$142,989	$2,015,616	58	0	10	2	4	74
06R44	SC	P	Milpitas Unified School District	Repower 2 heavy-duty diesel school buses with cleaner diesel engines.	10	$18,381	$95,326	$2,110,942	60	0	10	2	1	73
06R38	CC	N	Sims Hugo New	Purchase 10 compressed natural gas roll-off trucks.	10	$7,351	$500,000	$2,610,942	60	9	0	0	3	72

(1) REG = regional/multi-county.
(2) Public/Non-Public Entity.
(3) TFCA$ divided by est. lifetime ER (ozone precursors and weighted PM). May include TFCA County Program Manager funds.

ATTACHMENT 1
TFCA Regional Fund Grant Applications - FY 2006/2007
Project Scores and Ranking - Projects Recommended for Funding

Proj#	Cnty (1)	P/N (2)	Sponsor	Project Description	Yrs Eff	TFCA $ Per Ton (3)	TFCA $ Awarded	Cumulative Total $	CRITERIA POINT SCORES					
									TFCA Funding Eff	Green-house Gas ER	Other Attrib.	Clean Air Pol.	Disadv. & PM	TOTAL SCORE
06R46	SON	P	River Delta Unified School	Repower 2 heavy-duty diesel school buses with cleaner diesel engines.	10	$13,571	$95,326	$2,706,268	60	0	10	2	0	72
06R48	REG	P	San Francisco International Airport	Retrofit 27 diesel shuttle vehicles with PM/NOx Level 3 emission reduction devices.	5	$20,622	$609,711	$3,315,979	59	0	0	10	3	72
06R92	SF	P	University of California, San Francisco	Operation of two 22 passenger compressed natural gas shuttle buses from the Mission Bay Campus in San Francisco to the Powell Street BART station.	1	$48,132	$88,808	$3,404,787	45	5	10	5	6	71
06R73	ALA	P	City of Berkeley	Provide a mini-vanpool and carsharing program (Flexvan) to residents and commuters in the City of Berkeley, using 2 gasoline minivans.	1	$35,196	$17,871	$3,422,658	52	2	2	10	4	70
06R89	SC	P	San Jose State University - Associated Students	Implement Transportation Solutions, a transportation demand management program which provides alternative commute incentives, such as the University Transit pass program, and ridesharing information to students and employees of San Jose State University.	1	$54,686	$100,000	$3,522,658	42	6	6	10	5	69
06R41	ALA	N	Tri Ced Community Recycling	Purchase 10 compressed natural gas recycling trucks for use in Hayward.	10	$13,563	$500,000	$4,022,658	60	5	0	0	2	67
06R42	ALA	N	Waste Management	Purchase 14 compressed natural gas recycling trucks for use in Hayward.	10	$14,499	$500,000	$4,522,658	60	5	0	0	2	67
06R65	SF	N	Sheedy Drayage	Retrofit 6 heavy duty diesel trucks with Level 3 PM/NOx emission control devices.	5	$10,718	$147,323	$4,669,981	60	0	0	0	7	67
06R36	REG	N	Pacific Gas & Electric	Purchase 20 compressed natural gas heavy duty trucks.	10	$21,452	$500,000	$5,169,981	59	3	0	0	3	65
06R88	ALA	P	San Joaquin Regional Rail Commission	Operation of 2 peak-period shuttle buses between the Pleasanton ACE train station in downtown Pleasanton and the Dublin/Pleasanton BART station. The buses will service employment sites located in the Hacienda Business Park in north Pleasanton.	1	$44,674	$50,000	$5,219,981	47	4	10	4	0	65

(1) REG = regional/multi-county.
(2) Public/Non-Public Entity.
(3) TFCA$ divided by est. lifetime ER (ozone precursors and weighted PM). May include TFCA County Program Manager funds.

ATTACHMENT 1
TFCA Regional Fund Grant Applications - FY 2006/2007
Project Scores and Ranking - Projects Recommended for Funding

Proj#	Cnty (1)	P/N (2)	Sponsor	Project Description	Yrs Eff	TFCA $ Per Ton (3)	TFCA $ Awarded	Cumulative Total $	CRITERIA POINT SCORES					
									TFCA Funding Eff	Green-house Gas ER	Other Attrib.	Clean Air Pol.	Disadv. & PM	TOTAL SCORE
06R90	SC	P	Santa Clara Valley Transportation Authority	Operation of 8 peak-period shuttle bus routes from the Great America ACE train station in Santa Clara to employment sites in Palo Alto, Mountain View, Sunnyvale, Santa Clara, San Jose and Milpitas, using 6 diesel vehicles with ARB-certified PM filter and 4 gasoline vehicles.	1	$64,725	$950,000	$6,169,981	37	10	5	10	3	65
06R40	SOL	N	Solano Garbage Company/Bay Leasing	Purchase 2 compressed natural gas solid waste collection vehicles for use in City of Suisun and unincorporated areas of Solano County.	10	$7,195	$68,452	$6,238,433	60	2	0	0	2	64
06R83	REG	P	Peninsula Corridor Joint Powers Board	Operation of 28 peak-period shuttles to/from various Caltrain stations and employment sites on the Peninsula using 4 compressed natural gas vehicles, 9 gasoline vehicles, and 21 diesel vehicles with an ARB-certified PM filter.	1	$76,278	$1,034,355	$7,272,788	31	10	10	10	3	64
06R55	REG	N	Diamond Tank Lines	Retrofit 2 heavy-duty diesel trucks with PM/NOx Level 3 emission reduction devices.	5	$5,758	$42,793	$7,315,581	60	0	0	0	3	63
06R15	CC	P	County of Contra Costa	Construct Class-2 bicycle lane in the North Richmond area, on Third Street between Grove Avenue and the Class-1 Wildcat Creek Trail and Class-3 bicycle route on Market Street between Third Street and the county limits (0.7 miles total).	15	$71,373	$65,000	$7,380,581	34	3	8	9	9	63
06R68	REG	N	Sonoma County Airport Express	Retrofit 13 diesel buses with PM/NOx Level 3 emission control devices.	5	$3,269	$315,824	$7,696,404	60	0	0	0	2	62
06R58	REG	N	Marin Airporter	Retrofit 15 diesel buses with PM/NOx Level 3 emission control devices.	5	$6,015	$359,478	$8,055,882	60	0	0	0	2	62
06R64	REG	N	S.F. Navigatour, Inc.	Retrofit 3 diesel buses with PM/NOx Level 3 emission control devices.	5	$6,856	$74,914	$8,130,796	60	0	0	0	2	62
06R53	REG	N	Cummins West	Retrofit 2 heavy-duty diesel trucks with PM/NOx Level 3 emission reduction devices.	5	$6,993	$10,000	$8,140,796	60	0	0	0	2	62
06R54	REG	N	CUSA FL LLC	Retrofit 18 diesel buses with PM/NOx Level 3 emission control devices.	5	$8,082	$430,619	$8,571,414	60	0	0	0	2	62

(1) REG = regional/multi-county.
(2) Public/Non-Public Entity.
(3) TFCA$ divided by est. lifetime ER (ozone precursors and weighted PM). May include TFCA County Program Manager funds.

ATTACHMENT 1
TFCA Regional Fund Grant Applications - FY 2006/2007
Project Scores and Ranking - Projects Recommended for Funding

Proj#	Cnty (1)	P/N (2)	Sponsor	Project Description	Yrs Eff	TFCA $ Per Ton (3)	TFCA $ Awarded	Cumulative Total $	CRITERIA POINT SCORES					
									TFCA Funding Eff	Green-house Gas ER	Other Attrib.	Clean Air Pol.	Disadv. & PM	TOTAL SCORE
06R49	REG	N	Black Tie Transportation	Retrofit 6 diesel minibuses with PM/NOx Level 3 emission control devices.	5	$9,224	$31,993	$8,603,407	60	0	0	0	2	62
06R63	REG	N	Royal Coach Lines	Retrofit 16 diesel buses with PM/NOx Level 3 emission control devices.	5	$9,388	$383,191	$8,986,598	60	0	0	0	2	62
06R37	CC	N	Pleasanton Garbage Service, Inc.	Purchase 4 compressed natural gas solid waste collection vehicles for use in Pleasanton and Sunol.	10	$12,013	$200,000	$9,186,598	60	2	0	0	0	62
06R52	REG	N	Compass Transportation	Retrofit 12 diesel buses with PM/NOx Level 3 emission control devices.	5	$16,183	$284,564	$9,471,162	60	0	0	0	2	62
06R59	REG	N	Mercury Tours	Retrofit 10 diesel buses with PM/NOx Level 3 emission control devices.	5	$19,225	$224,490	$9,695,652	60	0	0	0	2	62
06R20	SF	P	Unversity of California, San Francisco	Purchase and install a 50-bicycle cage parking facility for employees, students and patients at Mount Zion Medical Center.	10	$53,577	$39,999	$9,735,651	43	2	8	5	4	62
06R70	REG	N	Thunderstar Stages	Retrofit 6 diesel buses with PM/NOx Level 3 emission control devices.	5	$7,418	$149,828	$9,885,479	60	0	0	0	2	62
06R69	REG	N	Sysco Food Service	Retrofit 21 heavy-duty diesel trucks with Level 3 PM/NOx emission reduction devices.	5	$7,774	$391,632	$10,277,110	60	0	0	0	2	62
06R94	REG	N	Airline Coach Service	Retrofit 2 minibuses with with PM/NOx Level 3 emission control devices.	5	$13,821	$40,943	$10,318,053	60	0	0	0	2	62
06R61	REG	N	North Bay Corportation	Retrofit 15 heavy-duty diesel trucks with PM/NOx Level 3 emission reduction devices.	5	$4,582	$288,849	$10,606,903	60	0	0	0	1	61
06R34	CC	N	Amador Valley Industries, LLC	Purchase 2 compressed natural gas solid waste collection vehicles for use in Dublin.	10	$15,017	$100,000	$10,706,903	60	1	0	0	0	61
06R10	SM	P	San Mateo Transit District	Implement a bus adaptive transit signal priority (ATSP) system for 52 intersections along 11 miles of El Camino Real.	4	$77,111	$422,731	$11,129,634	31	10	7	10	1	59
06R66	SM	N	South San Francisco Scavenger Company	Retrofit 5 solid waste collection vehicles with Level 3 PM/NOx emission reduction devices.	5	$27,651	$57,395	$11,187,029	56	0	0	0	2	58

(1) REG = regional/multi-county.
(2) Public/Non-Public Entity.
(3) TFCA$ divided by est. lifetime ER (ozone precursors and weighted PM). May include TFCA County Program Manager funds.

ATTACHMENT 1
TFCA Regional Fund Grant Applications - FY 2006/2007
Project Scores and Ranking - Projects Recommended for Funding

Proj#	Cnty (1)	P/N (2)	Sponsor	Project Description	Yrs Eff	TFCA $ Per Ton (3)	TFCA $ Awarded	Cumulative Total $	CRITERIA POINT SCORES					
									TFCA Funding Eff	Green-house Gas ER	Other Attrib.	Clean Air Pol.	Disadv. & PM	TOTAL SCORE
06R67	REG	N	Blue Line Transfer, Inc.	Retrofit 3 solid waste transfer vehicles with Level 3 PM/NOx emission reduction devices.	5	$31,014	$68,501	$11,255,530	54	0	0	0	2	56
06R18	SF	P	San Francisco MTA	Construct Class-2 bicycle lane (1 mile) between The Embarcadero and Van Ness Avenue.	15	$77,919	$92,600	$11,348,130	31	4	8	10	1	54
06R86	SF	P	Presidio Trust	Operation of four 26 passenger compressed natural gas shuttle buses for Presidio employees, residents and visitors, from the Presidio to the Embarcadero BART station, Transbay Bus Terminal, and the San Francisco Ferry Building.	1	$88,994	$125,000	$11,473,130	25	3	10	10	4	52
06R39	SM	N	South San Francisco Scavenger Co.	Replace 1 diesel roll-off truck with 1 compressed natural gas roll-off truck.	10	$44,282	$91,011	$11,564,141	47	1	0	0	2	50
06R17	SF	P	Golden Gate Park Concourse Authority	Construct Class-1 bicycle path (25 feet) at the Page Street and Stanyan Street entrance to Golden Gate Park that is separated from pedestrian access.	20	$73,532	$35,000	$11,599,141	33	2	7	3	4	49
06R51	REG	N	Coach 21	Retrofit 10 diesel buses with PM/NOx Level 3 emission control devices.	5	$50,944	$240,909	$11,840,050	44	0	0	0	2	46
06R87	ALA	P	San Joaquin Regional Rail Commission	Operation of 2 peak-period shuttle buses between the Pleasanton ACE train station in downtown Pleasanton and the Dublin/Pleasanton BART station. The buses will service employment sites located in the Stoneridge Business Park and Bernal Business Park.	1	$78,019	$36,439	$11,876,489	30	2	10	0	4	46
06R35	SON	N	North Bay Corporation	Purchase 6 compressed natural gas solid waste collection vehicles for use in Santa Rosa.	6	$60,858	$474,000	$12,350,489	39	3	0	0	2	44

(1) REG = regional/multi-county.
(2) Public/Non-Public Entity.
(3) TFCA$ divided by est. lifetime ER (ozone precursors and weighted PM). May include TFCA County Program Manager funds.

ATTACHMENT 2
TFCA Regional Fund Grant Applications - FY 2006/2007
Projects Not Recommended for Funding

Listed below, in alphabetical order by project sponsor, are those project applications that are not recommended for funding.

Proj#	Cnty (1)	P/N (2)	Sponsor	Project Description	Yrs Eff	TFCA $ Per Ton (3)	TFCA $ Requested	Cumulative Total $	CRITERIA POINT SCORES					
									TFCA Funding Eff	Green-house Gas ER	Other Attrib.	Clean Air Pol.	Disadv. & PM	TOTAL SCORE
06R21	REG	P	AC Transit	Demonstrate an energy-efficient electrolyzer that produces hydrogen fuel under pressure with the aid of photovoltaic solar panels.	10	N/A	$300,000	$300,000	0	0	8	10	4	22
06R71	ALA	P	Alameda County CMA	Door-to-door marketing of travel information options to households in Berkeley (along the San Pablo and Telegraph transit corridors) and San Leandro (around the San Leandro BART Station).	1	$99,445	$550,000	$850,000	0	9	4	5	4	22
06R05	ALA	P	Alameda County CMA	Implement a bus transit signal priority (TSP) system for five intersections along MacArthur Avenue between High Street and Canon Avenue/E. 28th Street/Excelsior Avenue.	4	$193,550	$500,000	$1,350,000	0	7	5	5	4	21
06R11	SM	P	City of Belmont	Construct Class-1 bicycle/pedestrian bridge (0.4 miles) over U.S. 101 from the Belmont Sports Complex to Hiller Street.	20	$155,093	$1,000,000	$2,350,000	0	10	10	5	0	25
06R27	CC	P	City of Fremont	Purchase one new compressed natural gas street sweeper.	10	$82,094	$50,025	$50,025	28	2	0	5	0	35
06R08	ALA	P	City of Oakland	Implement pedestrian improvements, including sidewalks and accented crosswalks, on 8th Street from Willow Street to Wood Street and on Wood between 7th Street and 8th Street to close a pedestrian gap.	20	$106,322	$300,000	$350,025	0	8	8	10	9	35
06R12	ALA	P	City of Oakland	Construct Class-2 bicycle lane and Class-3 bicycle route (1.25 miles total) between Park Boulevard and Lincoln Avenue.	15	$134,509	$398,380	$748,405	0	9	10	10	5	34
06R28	ALA	P	City of Oakland	Purchase 10 compressed natural gas street sweepers.	5	$1,165,092	$735,240	$1,483,645	0	2	0	10	8	20
06R76	ALA	P	City of San Leandro	Operation of a peak-period weekday compressed natural gas shuttle to/from the San Leandro BART Staton to major employment sites in the central and western areas of San Leandro.	1	$118,309	$82,000	$1,565,645	0	1	10	5	2	18

(1) REG = multi-county.
(2) Public/Non-Public Entity.
(3) TFCA$ divided by lifetime ER (ozone precursors and weighted PM). May include TFCA County Prog. Mgr. funds. "N/A" = zero ER; "Negative" = increased emissions.

ATTACHMENT 2
TFCA Regional Fund Grant Applications - FY 2006/2007
Projects Not Recommended for Funding

Proj#	Cnty (1)	P/N (2)	Sponsor	Project Description	Yrs Eff	TFCA $ Per Ton (3)	TFCA $ Requested	Cumulative Total $	CRITERIA POINT SCORES					
									TFCA Funding Eff	Green-house Gas ER	Other Attrib.	Clean Air Pol.	Disadv. & PM	TOTAL SCORE
06R13	SON	P	City of Santa Rosa	Construct Class-2 bicycle lane (1.6 miles) between McConnel Avenue and Fountaingrove Parkway.	15	$97,242	$225,000	$1,790,645	0	6	10	10	1	27
06R29	SM	P	City/County Association of Governments of San Mateo County	Purchase 2 compressed natural gas shuttle buses as part of the Hydrogen/CNG Powered Shuttle Program in Menlo Park.	2	Negative	$46,200	$1,836,845	0	1	0	9	3	13
06R77	CC	P	Contra Costa County Community Development	Operation of a new weekday shuttle bus route between the San Ramon Transit Center and the Dublin/Pleasanton BART station, using two 40 passenger diesel buses with ARB-certified PM filters.	1	Negative	$50,000	$1,886,845	0	0	10	9	0	19
06R16	ALA	P	County of Alameda	Construct a Class-2 bicycle lane (1.5 miles) from the Livermore City Limits at Isabel Avenue to the Lonestar Entrance.	15	$203,166	$450,000	$2,336,845	0	6	6	5	0	17
06R14	CC	P	County of Contra Costa	Construct a Class-2 bicycle lane (0.6 miles) between the City of Pinole city limits to 1,000 feet south of Tara Hill Road.	15	$210,691	$500,000	$2,836,845	0	7	8	9	0	24
06R30	SF	P	County of San Francisco	Replace 5 diesel street sweepers with compressed natural gas vehicles.	10	$232,183	$210,000	$3,046,845	0	2	0	10	7	19
06R47	SF	P	County of San Francisco	Retrofit 25 heavy-duty diesel trucks with PM-only Level 3 emission reduction devices.	3	$121,823	$342,563	$3,389,408	0	0	0	10	7	17
06R31	SC	P	Gilroy Unified School District	Replace two 1982 diesel school buses with new, cleaner diesel school buses.	10	$1,369,783	$198,000	$3,587,408	0	0	5	5	2	12
06R81	SC	P	Gilroy Unified School District	Provide vanpool service from Los Banos to Gilroy Caltrain Station. The van will also drop off employees of Gilroy High School and Brownel and South Valley Middle Schools.	1	Negative	$30,000	$3,617,408	0	0	2	5	1	8
06R24	SON	N	North Bay Electric Auto Association	Create a center for sustainable transportation, purchase equipment for converting light-duty vehicles to electric drive, and install a photovoltaic power system.	7	$99,750	$139,650	$3,757,058	0	4	8	0	1	13

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(3) TFCA$ divided by lifetime ER (ozone precursors and weighted PM). May include TFCA County Prog. Mgr. funds. "N/A" = zero ER; "Negative" = increased emissions.

ATTACHMENT 2
TFCA Regional Fund Grant Applications - FY 2006/2007
Projects Not Recommended for Funding

Proj#	Cnty (1)	P/N (2)	Sponsor	Project Description	Yrs Eff	TFCA $ Per Ton (3)	TFCA $ Requested	Cumulative Total $	CRITERIA POINT SCORES					
									TFCA Funding Eff	Green-house Gas ER	Other Attrib.	Clean Air Pol.	Disadv. & PM	TOTAL SCORE
06R84	SM	P	Peninsula Corridor Joint Powers Board	Operation of one 25 passenger gasoline shuttle bus route on weekends from the Tamien and San Jose Diridon Caltrain Stations and the Santa Clara Valley Transportation Authority's light rail system.	1	$125,434	$26,442	$3,783,500	0	1	10	10	4	25
06R85	ALA	P	Port of Oakland	Replace 18 diesel shuttle buses with compressed natural gas vehicles.	10	N/A	$930,000	$4,713,500	0	10	0	8	4	22
06R62	CC	N	Richmond Sanitary Service	Retrofit 25 refuse collection vehicles with PM/NOx Level 3 emission control devices.	5	$428,365	$246,778	$4,960,278	0	0	0	0	6	6
06R95	SF	P	San Francisco International Airport	Replace 7 diesel transit buses with compressed natural gas vehicles.	10	$220,236	$294,000	$5,254,278	0	10	0	10	1	21
06R33	SON	P	Sonoma County Transit	Purchase 5 compressed natural gas transit buses.	10	$101,264	$750,000	$6,004,278	0	10	0	9	2	21
06R19	ALA	P	University of California, Berkeley	Construct Class-1 bicycle path and Class-3 bicycle route (1.2 miles total) on campus.	15	$203,244	$200,970	$6,205,248	0	3	8	10	3	24
06R91	SF	P	University of California, San Francisco	Operation of two 22 passenger compressed natural gas shuttle buses from the Mission Bay Campus in San Francisco to the 16th Street BART station.	1	$207,308	$182,307	$6,387,555	0	2	10	6	5	23
06R93	SF	P	Veterans Administration Medical Center	Operation of ten 20-passenger gasoline shuttle buses from the Vetrans Administration Medical Center to the Embarcadero BART Station and Transbay Terminal.	1	Negative	$190,050	$6,577,605	0	3	5	5	3	16

(1) REG = multi-county.
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(3) TFCA$ divided by lifetime ER (ozone precursors and weighted PM). May include TFCA County Prog. Mgr. funds. "N/A" = zero ER; "Negative" = increased emissions.

AGENDA: 8

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chair Gayle B. Uilkema
and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 28, 2006

Re: Report of the Nominating Committee Meeting of November 21, 2006

RECOMMENDED ACTION

Approve Committee recommendation of Board Officers for the 2007 term of office.

BACKGROUND

The Nominating Committee met on Tuesday, November 21, 2006. The Committee discussed the nominations for Board Officers. The Committee unanimously voted, and recommends Board of Directors' approval of the following slate of Board Officers for the 2007 term of office:

Mark Ross, Chairperson

Jerry Hill, Vice-Chairperson

Pamela Torliatt, Secretary

Chair Uilkema will give an oral report of the meeting.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Mary Ann Goodley

AGENDA: 9

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chair Gayle B. Uilkema and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 28, 2006

Re: Report of the Stationary Source Committee Meeting of November 28, 2006

RECOMMENDED ACTION

Receive and file.

BACKGROUND

The Stationary Source Committee met on Tuesday, November 28, 2006. Staff reported on the following items:

A) Proposed Amendments to Regulation 9; Rule 9: Nitrogen Oxides from Stationary Gas Turbines;

B) Proposed New Regulation 6, Rule 2: Commercial Cooking Equipment;

C) Proposed Amendments to Regulation 9, Rule 8: Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines; and

D) Compliance Program FY 05-06 year in review.

Attached are the staff reports presented to the Committee for your review.

Chairperson John Silva will give an oral report of the meeting.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Mary Ann Goodley

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Silva and
Members of the Stationary Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 16, 2006

Re: Proposed Amendments to Regulation 9, Rule 9: Nitrogen Oxides from Stationary Gas Turbines

RECOMMENDED ACTION:

Receive and file.

BACKGROUND

The 2005 Ozone Strategy includes Control Measure SS 14, which is a commitment to consider amendments to Regulation 9, Rule 9: Nitrogen Oxides from Stationary Gas Turbines. Staff issued a draft rule and workshop report and conducted a public workshop on May 31, 2006 at the District office, and, in response to numerous comments, conducted a second workshop on a revised draft rule on October 13, 2006. Based on analysis of emission control technology and of comments received, staff has developed proposed amendments to Regulation 9, Rule 9 for the Board's consideration. A public hearing on the proposed amendments is scheduled for December 6, 2006.

DISCUSSION

Staff will provide the Committee with the following information:

- Description of the rule development process;
- Overview of the proposed amendments; and
- Next steps.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Guy Gimlen
Reviewed by: Daniel Belik

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Silva and
Members of the Stationary Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 16, 2006

Re: Proposed Regulation 6, Rule 2: Commercial Cooking Equipment

RECOMMENDED ACTION

Receive and file.

BACKGROUND

The District committed to study control of emissions from commercial charbroiling in the 2005 Ozone Strategy and further committed to develop such a control measure in the SB 656 Particulate Matter (PM) Implementation Schedule. Staff has investigated potential controls for cooking emissions and has developed draft regulatory language. The District held four public workshops on draft rule language for proposed Regulation 6, Rule 2: Commercial Cooking Equipment on November 14 and 15, 2006. Local restaurant owners as well as major ventilation hood manufacturers and restaurant industry representatives have provided both verbal and written comments on the proposed rule.

DISCUSSION

Staff will provide the Committee with the following information:

- Overview of proposed Regulation 6, Rule 2;
- Comments received during the public workshops; and
- Next steps in the rule development process.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Virginia Lau
Reviewed by: Daniel Belik

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Silva and
Members of the Stationary Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 16, 2006

Re: Proposed Amendments to Regulation 9, Rule 8: Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines

RECOMMENDED ACTION:

Receive and file.

BACKGROUND

The 2005 Ozone Strategy includes Further Study Measure 15, which is a commitment to evaluate whether additional controls to further reduce emissions from stationary internal combustion (IC) engines are feasible. In addition, the District's SB 656 Particulate Matter (PM) Implementation Schedule includes revisions to Regulation 9, Rule 8 as a control measure. Stationary internal combustion engines are similar to engines used for mobile sources such as heavy duty trucks, except they are used at stationary sources such as water treatment facilities, sanitation districts, fire and police departments, educational institutions, refineries, chemical manufacturers, commercial and residential buildings, and agricultural operations. IC engines are used as both primary and backup engines to generate electricity and power pumps and compressors.

Rule 9-8 sets emissions standards for nitrogen oxides (NOx) and carbon monoxide (CO). In addition, in 2004, the California Air Resources Board adopted an Airborne Toxic Control Measure for Compression-Ignition IC Engines (usually diesel-fired) that sets emissions limits for PM and NOx. There are also nationwide standards set by EPA that affect new IC engines manufactured between 1995 to 2016. EPA's rules set emission limits for PM, NOx, CO, and non-methane hydrocarbons. Finally, since the District adopted Rule 9-8 in 1993, other California districts have revised their IC engine rules.

DISCUSSION

Staff will provide the Committee with the following information:

- Description of the affected facilities and equipment;
- Background of the regulatory requirements affecting IC engines;
- Proposed regulatory concepts; and
- Next steps in the rule development process.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Victor Douglas
Reviewed by: Daniel Belik

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Silva and Members of the Stationary Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 15, 2006

Re: Compliance Program FY05-06 Year in Review

RECOMMENDED ACTION:

Informational report. Receive and file.

BACKGROUND:

The Compliance Program is one of the District's major core programs to maintain and improve air quality. It encompasses a wide range of activities from inspections, source testing, sampling & laboratory analysis, and compliance assistance to citations, penalties and settlements, and Hearing Board activity. The Program's mission is to deliver the emission reductions adopted into District Regulations, State or Federal Law, and permit conditions. The Program provides companies with assistance in complying with air quality rules and regulations, and when companies cannot comply, the District applies an appropriate level of enforcement action proportional to the non-compliance.

Enforcement, Penalties and Settlements, Hearing Board

The Enforcement component of the Program consists of activities designed to respond when sources are discovered in violation of applicable District, state, or federal regulations. This comprehensive and technically-based Enforcement component provides both an essential deterrent to continued or future non-compliance as well as consistency in practices throughout the regulated industries. This Program component includes all activities necessary to address non-compliance; issuing Notices of Violation and Notices to Comply; identifying causes of non-compliance and solutions for compliance; assessing penalties; and providing research and testimony before the District's Hearing Board. Other elements of the program include responding to citizen complaints about air pollution and assuring that sources return to compliance.

Compliance Assurance, Source Testing, Sampling & Laboratory Analysis

The Compliance Assurance component concentrates on assurance of continued compliance through conducting compliance inspections; source testing emissions; reviewing continuous emission, ground level and parametric monitors; sampling & laboratory analysis of coatings. Routine inspections combined with targeted audits of sources of air pollution help ensure that emission reductions, written into regulations, are

actually achieved. The Compliance Assurance component utilizes a cooperative working relationship with the regulated sources, in conjunction with graduated levels of enforcement actions, to maintain compliance with air quality regulations.

Compliance Assistance

The Compliance Assistance component includes a full range of educational and technical activities directed at individual companies, industry groups, trade associations, small businesses, and green business programs. Compliance assistance outreach to affected industries is planned for those industries where new requirements are being implemented from either rule amendments or future effective dates codified in the regulations. Multiple language translations are increasing the effectiveness of program outreach. Operations activities comprise the framework for District rule administrative requirements, such as notifications, plans and petitions, reportable compliance activities, etc., which are sometimes evaluated jointly with Meteorology or Air Monitoring staff.

DISCUSSION

Staff will provide the Committee with an overview of the Compliance Program's activities for Fiscal Year 2005-2006.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/Air Pollution Control Officer

Prepared by: Kelly Wee
Reviewed by: Peter Hess

AGENDA: 10

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chair Gayle B. Uilkema
and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 29, 2006

Re: Report of the Personnel Committee Meeting of December 4, 2006

RECOMMENDED ACTION:

The Committee may recommend Board of Directors' approval of appointments of candidates to fill expired terms of offices for nine (9) Advisory Council positions. The appointments will be for a 2-year term of office ending December 31, 2008.

BACKGROUND:

Pursuant to Section 40261 of the California Health and Safety Code the District is required to maintain an Advisory Council consisting of 20 members. Further, Section 40262 requires that the member categories consist of at least three representatives of public health agencies; at least four representatives of private organizations active in conservation or protection of the environment within the bay district; at least one representative of colleges or universities in the state; and at least one representative of each of the following groups within the bay district: regional park district, park and recreation commissions or equivalent agencies of any city, public mass transportation system, agriculture, industry, community planning, transportation, registered professional engineers, general contractors, architects, and organized labor. To the extent that suitable persons cannot be found for each of the specified categories, council members may be appointed from the general public.

DISCUSSION:

The Personnel Committee will meet on December 4, 2006 to conduct interviews of candidates to fill specific categories for those Advisory Council positions where the terms will expire on December 31, 2006. Based on the Committee's review of each candidate's background and responses to interview questions, the Personnel Committee will recommend to the full Board of Directors candidates that will be included in the oral report given by Director Kwok. The recommended selections are from a pool of 11 candidates.

Director Kwok will give an oral report of the meeting which will include the candidates recommended for appointment and their associated category. Attached are the staff reports received by the Committee.

BUDGET CONSIDERATION/FINANCIAL IMPACTS:

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Mary Romaidis
Approved by: Mary Ann Goodley

AGENDA: 4

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chair Kwok and
Members of the Personnel Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 21, 2006

Re: Conduct Interviews and Consider Recommending Board of Director Approval of Candidates for Appointments to the Air District's Advisory Council

RECOMMENDED ACTION:

Conduct interviews and consider recommending Board of Directors' approval of appointments of candidates to fill nine (9) Advisory Council positions.

BACKGROUND:

Pursuant to Section 40261 of the California Health and Safety Code the District is required to maintain an Advisory Council consisting of 20 members. Further, section 40262 requires that the member categories consist of at least three representatives of public health agencies; at least four representatives of private organizations active in conservation or protection of the environment within the bay district; at least one representative of colleges or universities in the state; and at least one representative of each of the following groups within the bay district: regional park district, park and recreation commissions or equivalent agencies of any city, public mass transportation system, agriculture, industry, community planning, transportation, registered professional engineers, general contractors, architects, and organized labor. To the extent that suitable persons cannot be found for each of the specified categories, council members may be appointed from the general public.

DISCUSSION:

The terms of office for the following categories will expire on December 31, 2006: architect, conservation organization (two positions), public health agency (two positions), registered professional engineer, transportation, colleges and universities and community planning. Eleven persons applied for the vacancies that were noticed in Bay Area newspapers, including eight incumbents. The new terms would expire on December 31, 2008.

The Advisory Council Applicant Selection Working Group and Peter Hess screened the new candidates as requested by the Committee. Interviews of candidates will take place on Monday, December 4, 2006 and will begin at 9:40 am. The length of each interview will be approximately fifteen minutes.

As requested by the Personnel Committee, a complete set of applications are included for your information and review.

The open positions and the candidates to be interviewed are listed below. The name of the incumbents who currently hold the positions have been highlighted in bold letters.

Architect	**Cassandra Adams**
Conservation Organization (two positions open)	**Irvin Dawid** **John W. Holtzclaw, Ph.D.** Linda Weiner*
Public Health Agency (two positions open)	**Steven Kmucha, M.D.** Walter Kruse
Registered Professional Engineer	**Sam Altshuler**
Transportation	**Louise W. Bedsworth** Robert Huang
Colleges and Universities	**Robert Bornstein, Ph.D.**
Community Planning	No applications received
Industry (Term expiration for this category is 12/31/07)	Stephen Ziman

* Incumbent to Advisory Council, presently assigned to the Public Health Agency category.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

AGENDA: 11

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chair Gayle B. Uilkema
and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: November 29, 2006

Re: Public Hearing to Consider Adoption of Proposed Amendments to Regulation 9, Rule 9: Nitrogen Oxides from Stationary Gas Turbines; and Adoption of a CEQA Negative Declaration

RECOMMENDED ACTION

Staff recommends that the Board of Directors take the following actions:

- Adopt proposed amendments to Regulation 9, Rule 9: Nitrogen Oxides from Stationary Gas Turbines; and
- Adopt a Negative Declaration pursuant to the California Environmental Quality Act (CEQA) for this rule-making activity.

BACKGROUND

Regulation 9, Rule 9: Nitrogen Oxides from Stationary Gas Turbines sets emission limits for nitrogen oxides (NOx) from stationary gas turbines in order to reduce ozone forming emissions to the atmosphere. The proposed amendments to Regulation 9, Rule 9 will implement Control Measure SS 14 ("Stationary Gas Turbines") in the Bay Area 2005 Ozone Strategy and make other improvements to the rule. The rule requires turbines to meet emission rates depending on their size, fuel type, and amount of usage. Gas turbines are used to supply commercial electrical power, mechanical power, and steam used within various industries such as petroleum refineries.

DISCUSSION

The proposed amendments:

- Categorize affected turbines by heat input rather than megawatt output;
- Set more stringent emission limits for some categories of turbines;
- Provide a new measure of compliance, pounds of NOx per megawatt–hour, and include the heating value of steam and useful work in the compliance calculation,
- Provide an emission averaging period; and
- Allow low usage turbines to operate up to 400 hours per year before new, more stringent emission limits become effective.

In addition, the proposed amendments provide new definitions; administrative, recordkeeping and monitoring requirements; and test methods where necessary to clarify and enforce the new provisions in the rule.

RULE DEVELOPMENT PROCESS

The proposed rule amendments are the result of an extensive public process. The District contacted each affected facility in January and February, 2006 to advise them of the rule development process. Staff visited seven facilities to understand the range of turbine operations in the Bay Area, and understand the issues and concerns these facilities may have. Draft rule amendments and a workshop report were presented at a public workshop in May, 2006. Based on the input received at these meetings, and additional meetings with stakeholders in June through August, 2006, the proposal was revised and a second draft rule was presented at a second public workshop in October. Following this workshop, staff considered written comments received from stakeholders, including Calpine Corporation, Silicon Valley Power, Valero Energy, and the Western States Petroleum Association (WSPA), in the preparation of the proposed amendments. A staff report and draft of the amendments were made available to the public along with the initial study, draft CEQA negative declaration, and socioeconomic analysis on November 6, 2006. Staff reported to the Stationary Source Committee on rule development progress in July, September, and November, 2006. Following the posting of the proposed amendments on November 6, written comments were received from Silicon Valley Power, Valero Energy, WSPA, and the ARB, and verbal comments were provide by WSPA at the November 28 Stationary Source Committee meeting. Staff responses to these comments are found in the Comments and Responses Appendix to the Staff Report.

ENVIRONMENTAL IMPACTS

A CEQA analysis has been prepared by Environmental Audit, Inc. of Placentia, California. This analysis concludes that the proposed amendments would not have any significant adverse environmental impacts. Attached is a Negative Declaration for the proposed amendments pursuant to Public Resources Code § 21080(c) and CEQA Guidelines 15070 et seq. Staff recommends that the Board adopt the attached CEQA negative declaration.

BUDGET CONSIDERATIONS/FINANCIAL IMPACTS

None. The District already conducts a comprehensive permitting, inspection and monitoring program for gas turbines. These amendments will not require additional District resources.

Respectfully submitted,

Jack P. Broadbent
Executive Officer / Air Pollution Control Officer

Prepared by: Guy Gimlen
Reviewed by: Henry Hilken

Attachments:

Proposed Amendments to Regulation 9, Rule 9: Nitrogen Oxides from Stationary Gas Turbines
Staff Report, including Appendices:

1. Comments and Responses
2. Socioeconomic Analysis
3. CEQA Initial Study and Negative Declaration

REGULATION 9
INORGANIC GASEOUS POLLUTANTS
RULE 9
NITROGEN OXIDES FROM STATIONARY GAS TURBINES

INDEX

REGULATION 9
INORGANIC GASEOUS POLLUTANTS
RULE 9
NITROGEN OXIDES FROM STATIONARY GAS TURBINES

(Adopted May 5, 1993)

9-9-100 GENERAL

9-9-101 Description: The purpose of this Rule is to limit emissions of nitrogen oxides (NO_X) from stationary gas turbines.

9-9-110 Exemption, Small Gas Turbines: This Rule shall not apply to stationary gas turbines with a ~~power rating~~ heat input rating less than 5 MM Btu/hr ~~0.3 megawatts (MW).~~

9-9-111 Exemption, General: The requirements of this Rule shall not apply to:

111.1 Testing of aircraft gas turbine engines for flight certification.

111.2 Gas turbines used solely for firefighting and/or flood control.

~~111.3 Emergency standby gas turbines excluded under Regulation 1-110.2.~~

9-9-112 Limited Exemption, Low Usage: The requirements of this Rule shall not apply to the operation of gas turbines rated less than 50 MM Btu/hr heat input ~~4.0 MW which~~ that operate less than 877 hours ~~per year~~ in any 12-month period, provided the requirements of Section 9-9-502 are satisfied.

9-9-113 Exemption, Inspection and Maintenance Periods: The emission limits of Section~~s~~ 9-9-301~~, 303, and 304~~ shall not apply during inspection and maintenance periods, with the following limitations:

113.1 Inspection and maintenance periods shall be limited to a total of 48 hours between May 1 and October 31 in a calendar year.

113.2 For a calendar year in which a boiler inspection required by California Labor Code Section 7682 is not performed, inspection and maintenance periods shall be limited to a total of 144 hours.

113.3 For a calendar year in which a boiler inspection required by California Labor Code Section 7682 is performed, inspection and maintenance periods shall be limited to 144 hours plus additional time required for the boiler inspection, provided, however, that the additional time shall not cause the calendar-year total of all inspection and maintenance periods to exceed 312 hours.

(Adopted September 21, 1994)

9-9-114 Exemption, Start-up and Shutdown Periods: The emission limits of Sections 9-9-301~~,~~ and 302~~, 303, 304, and 305~~ shall not apply during start-up or shutdown periods.

(Adopted September 21, 1994)

9-9-115 Limited Exemption, Minor Inspection and Maintenance Work: The requirements of Section 9-9-301 shall not apply during periods of inspection and maintenance work on a gas turbine or associated components, not to exceed 4 hours on any day and 48 hours in any 12-month period, that are planned and scheduled at least 24 hours in advance. The operator shall keep records of these planned inspection and maintenance events and make them available to the APCO on request. This exemption shall not apply to low-usage turbines subject to Section 9-9-302. Any annual emissions limit required by permit condition shall include emissions resulting from this minor inspection and maintenance work.

9-9-116 Limited Exemption, Very Limited Use Turbines: The emission limits in Section 9-9-302.2 shall not apply to turbines that operate less than 1200 hours between January 1, 2007 and January 1, 2010, and do not operate more than 400 hours during any 12-month period after January 1, 2010, provided the requirements in Section 9-9-502 are met. Turbines that initially qualify for this limited exemption based on the number of hours of operation between January 1, 2007 and January 1, 2010, but operate more than 400 hours per 12-month period after January 1, 2010, shall continue to comply with the emission limits in 9-9-302.2 subject to the compliance schedule set forth in Section 9-9-405. This limited exemption does not apply to the emission limits in Section 9-9-302.1.

9-9-120 Interchangeable Emission Reduction Credits: Until such time as the (date of adoption) amendments to this rule are approved into the State Implementation Plan by the EPA, the

emission limits of Sections 9-9-301.2 and 9-9-302.2 may be complied with by interchangeable emission reduction credits used pursuant to and as limited by the provisions of Regulation 2, Rule 9. An operator must still comply with the emission limits of Sections 9-9-301.1 and 9-9-302.1 without using interchangeable emission reduction credits.

9-9-200 DEFINITIONS

9-9-201 Commercially Available: Any control technology or equipment that is offered for a specific make and model of gas turbine by at least one vendor, is guaranteed by the vendor to achieve the emission control performance required by this Rule, has been demonstrated in practice at 3 or more sites, achieves the required emission control performance utilizing similar fuel composition for a regular or full-scale operation within the United States, and demonstrates at least 90% availability.

9-9-202 Dry Low-NOx Combustion Technology (DLN): A turbine combustor design that uses multiple staging, air/fuel premixing or other modifications to achieve lower levels of NOx emissions as compared to conventional combustors.

9-9-201~~3~~ EFF: Thermal efficiency.

9-9-204 Emergency Use: Operation during a natural or civil disaster or emergency situation, as requested or ordered by any federal, state or local agency to protect the public, life or property.

9-9-202~~5~~ Essential Gas Turbine: A gas turbine ~~which~~ that cannot be taken out of service without shutting down the process unit which it serves.

(Adopted September 21, 1994)

9-9-206 Heat Input Rating: The heat input requirement (based on fuel HHV) of a gas turbine at its International Standards Organization (ISO) 3977 nameplate rated power output at standard conditions of 1 atmosphere, 15^{o} Centigrade, and 60% atmospheric humidity.

9-9-203~~7~~ HHV: The higher heating value of fuel.

(Renumbered September 21, 1994)

9-9-204~~8~~ LHV: The lower heating value of fuel.

(Renumbered September 21, 1994)

9-9-205~~9~~ Inspection and Maintenance Period: A period of time during which the ~~boiler~~ heat recovery steam generator associated with an essential gas turbine is taken out of service for inspection or maintenance, and during which gas turbine emissions are vented to a bypass stack rather than through the ~~to the SCR unit~~ heat recovery steam generator.

(Adopted September 21, 1994)

9-9-2~~06~~10 Natural Gas: Any mixture of gaseous hydrocarbons containing at least 80 percent methane by volume, as determined according to Standard Method ASTM D1945~~-64~~.

(Adopted September 21, 1994)

9-9-2~~07~~11 Nitrogen Oxide (NOx) Emissions: The sum of nitric oxide and nitrogen dioxide (NO_{2}) in the flue gas, collectively expressed as nitrogen dioxide.

(Adopted September 21, 1994)

9-9-2~~08~~12 Non-Gaseous Fuel: Any fuel which is not a gas at 68^{O} F and one atmosphere.

(Adopted September 21, 1994)

9-9-2~~09~~13 Power Augmentation: An increase in the gas turbine shaft output or the decrease in turbine fuel consumption by the addition of energy recovered from exhaust heat.

(Renumbered September 21, 1994)

9-9-21~~0~~4 Power Output Rating: The continuous megawatt (MW) rating or mechanical equivalent by a manufacturer for gas turbine(s) without power augmentation.

(Renumbered September 21, 1994)

9-9-21~~1~~5 Refinery Fuel Gas: A mixture of hydrogen and gaseous hydrocarbons generated by petroleum refinery processes and used by the refinery for on-site combustion in boilers, process heaters, turbines, and other combustion equipment.

(Adopted September 21, 1994)

9-9-21~~2~~6 Selective Catalytic Reduction (SCR): ~~Selective Catalytic Reduction~~A post-combustion NOx control technique in which a reducing agent (for example: ammonia) is used in a gas-phase reaction with oxides of nitrogen in the presence of a catalyst to convert the oxides of nitrogen into nitrogen and water.

(Renumbered September 21, 1994)

9-9-213~~7~~ **Shutdown Period:** A period of time, not to exceed ~~one~~ two hours, during which a gas turbine is brought from normal operating power output to inactive status.

(Adopted September 21, 1994)

9-9-214~~8~~ **Start-up Period:** A period of time, not to exceed ~~three~~ four hours (six hours for cold steam turbine starts at combined cycle facilities), during which a gas turbine is brought from inactive status to normal operating power output.

(Amended September 21, 1994)

9-9-215~~9~~ **Stationary Gas Turbine:** Any gas turbine system ~~which~~ that is attached to a foundation and is gas and/or liquid fueled with or without power augmentation. Two or more gas turbines powering one shaft shall be treated as one unit.

(Renumbered September 21, 1994)

9-9-220 **Waste Gas:** A mixture of hydrogen, gaseous hydrocarbons and other diluent gases generated by sewage treatment or landfill biomass and used by the facility for on-site combustion in gas turbines or other combustion equipment.

9-9-221 **Water Injection / Steam Injection Enhancement:** A retrofit design improvement to water or steam injection location, orientation, or turbine combustor or other modifications to achieve lower levels of NOx emissions as compared to existing water or steam injection design.

9-9-300 STANDARDS

9-9-301 Emission Limits, General:

301.1 ~~Except as provided by Sections 9-9-302, 9-9-303, 9-9-305, or 9-9-401, effective January 1, 1997,~~ A~~a~~ person shall not operate a stationary gas turbine unless nitrogen oxides (NOx) emission concentrations, corrected to 15 percent O_2 (dry basis), do not exceed the compliance limits listed below:

301.1.1 Gas turbines rated at 0.3 MW to less than 10.0 MW shall not exceed 42 ppmv, except that, for refinery fuel gas firing, the limit shall be 55 ppmv, and for non-gaseous fuel firing during natural gas curtailment or short testing periods, the limit shall be 65 ppmv.

301.1.2 Gas turbines rated at 10.0 MW and over, without SCR, shall not exceed 15 ppmv, except that, for non-gaseous fuel firing during natural gas curtailment or short testing periods, the limit shall be 42 ppmv.

301.1.3 Gas Turbines rated at 10.0 MW and over, with SCR, shall not exceed 9 ppmv, except that, for non-gaseous fuel firing during natural gas curtailment or short testing periods, the limit shall be 25 ppmv.

301.2 Effective January 1, 2010, a person shall not operate a stationary gas turbine unless nitrogen oxides (NO_X) emissions, corrected to 15 percent O_2 (dry basis), are less than either of the alternative compliance limits listed below for the turbine heat input rating and type of fuel burned:

Turbine Heat Input Rating	Natural Gas	Refinery Fuel Gas, Waste Gas or LPG	Non-gaseous Fuel
< 5 MM Btu/hr	Exempt	Exempt	Exempt
5 - 50 MM Btu/hr	2.12 lbs/MWhr or 42 ppmv	2.53 lbs/MWhr or 50 ppmv	3.28 lbs/MWhr or 65 ppmv
> 50 – 150 MM Btu/hr - no retrofit available[(a)]	1.97 lbs/MWhr or 42 ppmv	2.34 lbs/MWhr or 50 ppmv	3.04 lbs/MWhr or 65 ppmv
> 50 – 150 MM Btu/hr - WI/SI enhancement available [(b)]	1.64 lbs/MWhr or 35 ppmv	2.34 lbs/MWhr or 50 ppmv	3.04 lbs/MWhr or 65 ppmv
> 50 – 150 MM Btu/hr - DLN technology available [(c)]	1.17 lbs/MWhr or 25 ppmv	2.34 lbs/MWhr or 50 ppmv	3.04 lbs/MWhr or 65 ppmv
> 150 – 250 MM Btu/hr	0.70 lbs/MWhr or 15 ppmv	0.70 lbs/MWhr or 15 ppmv	1.97 lbs/MWhr or 42 ppmv
> 250 – 500 MM Btu/hr	0.43 lbs/MWhr or 9 ppmv	0.43 lbs/MWhr or 9 ppmv	1.17 lbs/MWhr or 25 ppmv
> 500 MM Btu/hr	0.15 lbs/MWhr	0.26 lbs/MWhr	0.72 lbs/MWhr

	or 5 ppmv	or 9 ppmv	or 25 ppmv

(a) The emission limits on this line apply to turbines for which no Water Injection or Steam Injection enhancement or DLN combustion technology is commercially available.

(b) The emission limits on this line apply to turbines for which Water Injection or Steam Injection enhancement is commercially available.

(c) The emission limits on this line apply to turbines for which DLN combustion technology is commercially available and which have not been required to install Water Injection or Steam Injection enhancements to comply with this Section 301.2.

301.3 If a turbine burns a mixture of fuels, the turbine's NOx emission limit shall be the highest of the limits applicable to any of the fuels in the mixture.

301.4 Violation of either of the alternative standards in Section 301.2 applicable to a particular turbine shall create a rebuttable presumption that the turbine is in violation of Section 301.2. The operator of the turbine may rebut the presumption of violation by demonstrating that the turbine is in compliance with the other alternative standard.

(Amended September 21, 1994)

9-9-302 Emission Limits, Low Usage:

302.1 ~~Effective January 1, 1997, a person shall not operate a stationary gas turbine rated at 4.0 MW or greater and operating less than 877 hours per year unless~~ Until January 1, 2010, or other date provided under a compliance schedule pursuant to Section 9-9-402.2, a person may operate a stationary gas turbine for up to 877 hours in any 12-month period (not counting hours of emergency use) without complying with the emission limits Section 9-9-301 as long as nitrogen oxides (NOx) emission concentrations, corrected to 15 percent O_2 (dry basis), do not exceed 42 ppmv when firing with natural gas and 65 ppmv when firing with non-gaseous fuel, and ~~provided~~ the requirements of Section 9-9-502 are satisfied.

(Amended September 21, 1994)

302.2 Effective January 1, 2010, a person may operate a stationary gas turbine rated at 50 MMBtu/hr or greater for up to 877 hours in any 12-month period (not counting hours of emergency use) without complying with the emission limits set forth in Section 9-9-301 as long as nitrogen oxides (NOx) emissions, corrected to 15 percent O_2 (dry basis), are less than either of the of the alternative limits listed below for the turbine's heat input rating and the type of fuel burned, and the requirements of Section 9-9-502 are satisfied:

Turbine Heat Input Rating	Natural Gas	Refinery Fuel Gas, Waste Gas or LPG	Non-gaseous Fuel
< 50 MMBtu/hr	Exempt	Exempt	Exempt
50 – 150 MMBtu/hr (3 – 10 MW)	1.97 lbs/MWhr or 42 ppmv	N/A	3.04 lbs/MWhr or 65 ppmv
> 150 – 250 MMBtu/hr (10 – 19 MW)	1.97 lbs/MWhr or 42 ppmv	N/A	3.04 lbs/MWhr or 65 ppmv
> 250 – 500 MMBtu/hr (19 – 40 MW)	1.17 lbs/MWhr or 25 ppmv	N/A	1.97 lbs/MWhr or 42 ppmv
> 500 MMBtu/hr (40+ MW)	0.72 lbs/MWhr or 25 ppmv	N/A	1.21 lbs/MWhr or 42 ppmv

302.3 If a turbine burns a mixture of fuels, the turbine's NOx emission limit shall be the highest of the limits applicable to any of the fuels in the mixture.

302.4 Violation of either of the alternative standards in Section 302.2 applicable to a particular turbine shall create a rebuttable presumption that the turbine is in violation of Section 302.2. The operator of the turbine may rebut the presumption of violation by demonstrating that the turbine is in compliance with the other alternative standard.

~~**9-9-303 Emission Limits, Alternative Schedule:** A person operating a stationary gas turbine rated at 10 MW to less than 30MW, without SCR, which is otherwise subject to Section 9-9-301.2,~~

~~may comply with both of the following emission limitations instead of complying with Section 9-9-301.2:~~

~~303.1 Effective January 1, 1996, a person shall not operate such a stationary gas turbine unless nitrogen oxides (NOx) emission concentrations, corrected to 15 percent O_2 (dry basis), do not exceed 25 ppmv, except that, for non-gaseous fuel firing during natural gas curtailment or short testing periods, the limit shall be 42 ppmv.~~

~~303.2 Effective January 1, 2000, a person shall not operate such a stationary gas turbine unless nitrogen oxides (NOx) emission concentrations, corrected to 15 percent O_2 (dry basis), do not exceed 15 ppmv, except that, for non-gaseous fuel firing during natural gas curtailment or short testing periods, the limit shall be 42 ppmv.~~

~~*(Adopted September 21, 1994)*~~

~~**9-9-304 Emission Limits, Interim RACT:** Effective May 31, 1995, a person shall not operate a stationary gas turbine rated at 30 MW or greater and operating 877 hours per year or more unless nitrogen oxides (NOx) emission concentrations, corrected to 15 percent O_2 (dry basis), do not exceed 42 ppmv when firing with natural gas or 65 ppmv when firing with non-gaseous fuels. (Adopted September 21, 1994)~~

~~**9-9-305 Emission Limits, Existing Low-NOx Turbines:** Effective January 1, 1997, a person shall not operate a stationary gas turbine which 1) received a permit to operate prior to May 5, 1993, 2) was required to comply with Best Available Control Technology provisions limiting NOx emissions to 25 ppm or below, and 3) used a technology other than SCR to comply with that limit unless nitrogen oxides (NOx) emissions, corrected to 15 percent O_2 (dry basis), do not exceed 18 ppmv, except that, for non-gaseous fuel firing during natural gas curtailment or short testing periods, the limit shall be 42 ppmv. (Adopted September 21, 1994)~~

9-9-400 ADMINISTRATIVE REQUIREMENTS

9-9-401 Certification, Efficiency: If a person who operates a gas turbine subject to the limits of subsections 9-9-301.1.2 or 301.1.3~~, 9-9-303, or 9-9-305~~ can demonstrate a thermal efficiency (EFF) greater than 25 percent in accordance with subsections 401.2.1 or 401.2.2, the emissions limit may be adjusted in accordance with Section 9-9-401.1.

401.1 $$Adjusted\ Emission\ Limit = \frac{Emission\ Limit \times EFF}{25}$$

401.2 EFF (percent efficiency) is the higher of 2.1 or 2.2. An EFF that is less than 25% shall be assigned a value of 25%.

2.1 $$EFF = \frac{3412 \times 100\%}{Actual\ Heat\ Rate\ at\ HHV\ of\ Fuel \times \frac{BTU}{KW - HR}}$$

which is the demonstrated percent efficiency of the gas turbine only as calculated without consideration of any downstream energy recovery (not used for power augmentation) from the actual heat rate, (BTU/KW-HR) or 1.34 (BTU/HP-HR); corrected to the HHV (higher heating value) of the fuel and standard conditions, as measured at peak load for that facility.

or

2.2 $$EFF = Manufacturer's\ Rated\ Efficiency\ ^{*} \times \frac{LHV}{HHV}$$

*With Air Pollution Equipment at LHV

which is the manufacturer's continuous rated percent efficiency of the gas turbine with air pollution equipment after correction from LHV to HHV of the fuel.

(Amended September 21, 1994)

9-9-402 Compliance Schedule: ~~A person who must modify existing sources or install new control equipment to meet the requirements of Section 9-9-301 or 302 shall comply with the following increments of progress:~~

402.1 ~~By July 1, 1995 A~~ A person who must modify existing sources or install new control equipment to meet the requirements of Section 9-9-301.2 or 302.2 shall submit an application for any Authority to Construct for the modification or installation of new

control equipment by July 1, 2008, or by the date required pursuant to Section 9-9-404.3.

402.2 Any turbine subject to Sections 9-9-301.2 or 9-9-302.2 shall comply with the applicable emission limits set forth in those sections by January 1, 2010, or by the date required pursuant to Section 9-9-404.3, unless the turbine has not had a scheduled major maintenance outage by January 1, 2010, in which case the turbine shall comply with the applicable emission limits 30 days after the end of the next scheduled major maintenance outage, but in no event later than January 1, 2012.

~~402.2 By January 1, 1996: Submit a status report to the APCO stating the progress of the modification or installation.~~

~~**9-9-403 Alternative Compliance Schedule:** A person who must modify existing sources or install new control equipment to meet the requirements of Section 9-9-303 shall comply with the following increments of progress:~~

~~403.1 By January 1, 1995: Submit an application for any Authority to Construct to achieve compliance with Section 9-9-303.1.~~

~~403.2 By July 1, 1995: Submit a status report to the APCO stating the progress of the modification or installation to achieve compliance with Section 9-9-303.1.~~

~~403.3 By January 1, 1996: Be in compliance with the requirements of Section 9-9-303.1 and all other applicable requirements of this Rule.~~

~~403.4 By January 1, 1998: Submit an application for any Authority to Construct to achieve compliance with Section 9-9-303.2.~~

~~403.5 By January 1, 1999: Submit a status report to the APCO stating the progress of the modification or installation to achieve compliance with Section 9-9-303.2.~~

~~403.6 By January 1, 2000; Be in compliance with the requirements of Section 9-9-303.2 and all other applicable requirements of this Rule~~

~~*(Adopted September 21, 1994)*~~

9-9-404 Compliance Schedule for Future Commercial Availability of Retrofit Technology: If water injection or steam injection enhancement retrofits or Dry Low NOx combustion technology become commercially available for a specific make and model of turbine after December 31, 2006, subjecting operators of that make and model of turbine to lower NOx emissions limits pursuant to Section 9-9-301.2, affected operators shall comply with Section 9-9-301.2 according to the following schedule.

404.1 Upon determining that water injection or steam injection enhancement retrofits or Dry Low NOx combustion technology are commercially available for a specific make and model of turbine, the APCO shall notify all operators of that make and model, in writing, of the commercial availability of the technology.

404.2 If any affected operator disagrees that the technology is commercially available for its turbine, as that term is defined in Section 9-9-201, the operator may object to the APCO in writing within 90 days of such notification. Within 30 days after receiving an objection, the APCO may amend the determination of commercial availability for the turbine for which the objection is made. If no objection is made for a particular turbine, or an objection is made and the APCO does not change the determination of commercial availability, the technology shall be deemed commercially available for that turbine.

404.3 Any affected operator that must install new equipment or modify its operation in a manner that requires a permit amendment in order to comply with the applicable NOx emissions limit in Section 9-9-301.2 shall (i) submit an application for Authority to Construct to install the new equipment or modify its operation within 18 months of the date of the initial notification from the APCO of the commercial availability, and (ii) comply with the more stringent emission standards associated with the commercially available technology within 36 months of the date of the initial notification, or 30 days after the end of the next scheduled major maintenance outage if no such outage is scheduled within 36 months of the date of the initial notification, but in no event more than 60 months after the date of initial notification.

404.4 If an affected operator can comply the applicable NOx emissions limit in Section 9-9-301.2 without having to install new equipment or modify its operation in a manner that requires a permit amendment, the operator shall (i) so inform the APCO in writing within 90 days of the date of the initial notification from the APCO of the

commercial availability, and (ii) comply with the more stringent emission standards associated with the commercially available technology within 30 days thereafter.

9-9-405 Notification and Compliance Schedule, Very Limited Use Turbines: If a gas turbine exceeds 400 hours of operation in any 12-month period and is not compliant with the emission limits in Section 9-9-302.2, the operator must notify the APCO of that fact and must provide its best estimates for future operation of the turbine. Based on a review of these estimates, if the APCO determines that the turbine will likely continue to be operated at a rate exceeding 400 hours per 12-month period in the future, the APCO will provide written notice of that determination to the operator. If the APCO determines that the turbine will be operated at a rate exceeding 400 hours in the future, the turbine shall comply with the emission limits in Section 9-9-302.2. If the operator will have to modify existing sources or install new control equipment to meet the emission limits in Section 9-9-302.2, the operator shall submit an application for Authority to Construct the modification or installation of new control equipment within 18 months of such notification, and shall comply with the emission limits in Section 9-9-302.2 within 36 months of such notification, or 30 days after the end of the next scheduled major maintenance outage if no such outage is scheduled within 36 months of the date of the initial notification, but in no event more than 60 months after the date of initial notification. The limited exemption in Section 9-9-115 shall cease to apply if the turbine violates this compliance schedule.

9-9-406 Other Useful Heat Recovery: Any operator who wishes to get credit for other useful heat recovery for their gas turbines shall propose a calculation method to determine Po, as used in 9-9-605. This calculation method shall be subject to approval by the APCO.

9-9-500 MONITORING AND RECORDS

9-9-501 Monitoring and Recordkeeping Requirements: A person who operates any stationary gas turbine with a heat input rating ~~rated~~ equal to or greater than 150 MMBtu/hr ~~10.0 MW and operated an average of~~ for more than 4000 hours ~~per year over the last~~ in any ~~three years~~36-month period ~~before April 21, 1993~~ shall install, operate and maintain in calibration a continuous emissions monitor (CEM), or alternative monitoring system, capable of determining exhaust gas NO_X concentrations. A CEM must meet the requirements of the District Manual of Procedures, Volume V. Any operator choosing to demonstrate compliance with Section 9-9-301.2 or 9-9-302.2 using the output-based NOx limits expressed in lbs/MWhr must also monitor and record fuel consumption by the gas turbine and any supplemental duct burners, electrical and mechanical output from both combustion and steam turbines, any steam production flow rates and steam enthalpy. Any alternative monitoring system must be approved by the APCO. Such approval will only be granted upon a determination, pursuant to the criteria of 40 CFR Part 75, Subpart E, that the alternative monitoring system provides information with the same precision, reliability, accessibility, and timeliness as that provided by a CEM for the source.

(Amended September 21, 1994)

9-9-502 Records, Low Usage: A person ~~subject to the requirements of Section 9-9-302~~claiming to be exempt from Section 9-9-301 based on the number of hours of turbine operation, or seeking exemption per Sections 9-9-112 or 9-9-116 of this Rule, shall maintain a daily gas turbine operating record that includes~~,~~ the actual start-up and stop time, total hours of operation, and type (liquid or gas) and quantity of fuel used ~~(liquid/gas)~~. This information shall be available to District staff upon request for at least two years from the date of entry.

9-9-503 Initial Demonstration of Compliance: ~~A person who must modify existing sources or install new control equipment shall conduct a District approved source test, by the following dates and submit the results to the District within two months after the following dates:~~

~~503.1 March 31, 1996, for the purpose of demonstrating compliance with Section 9-9-303.1.~~

~~503.2 March 31, 1997, for the purpose of demonstrating compliance with Section 9-9-301, 302, or 305.~~

~~503.3 March 31, 2000, for the purpose of demonstrating compliance with Section 9-9-303.2.~~

~~503.4~~ A person who must modify existing sources or install new control equipment shall conduct a District approved source test to demonstrate compliance with 9-9-301.2 or 302.2, and submit the results to the District within two months of initial operation of the new or modified equipment.

(Amended September 21, 1994)

9-9-504 Annual Demonstration of Compliance: The operator of any turbine subject to this Rule that operates more than 400 hours in any 12-month period and is not equipped with a Continuous Emissions Monitor shall conduct a District-approved source test of the turbine at least once per calendar year, and at intervals not to exceed 15 months between tests, and shall submit the test results to the District within two months of the test date. The operator of any turbine that operates 400 hours or less in any 12-month period shall conduct a District-approved source test of the turbine every two calendar years, at a rate not to exceed 25 months.

9-9-600 MANUAL OF PROCEDURES

9-9-601 Determination of Emissions: Source tests for determining compliance with the NOx emissions standards of this rule ~~Emissions of oxides of nitrogen~~ as specified in Sections 9-9-301~~,~~ and 302~~, 303, 304, and 305~~ shall be ~~measured~~ conducted as prescribed in the District Manual of Procedures, Volume IV, ST-13A ~~or B~~.

(Amended September 21, 1994)

9-9-602 Determination of Stack Gas Oxygen: Oxygen content of the exhaust gas shall be determined by using District Manual of Procedures, Volume IV, ST-14.

9-9-603 Continuous Emission Monitoring: Continuous Emissions Monitoring (CEM) procedures shall be determined using District Manual of Procedures, Volume V. For purposes of determining compliance with the NOx emissions standards of this rule, NOx emissions shall be calculated as the three hour average NOx emissions corrected to 15 percent O_2 (dry basis). Results of source tests conducted as prescribed in the District Manual of Procedures shall be deemed to be representative of three-hour average NOx emissions.

9-9-604 Determination of HHV and LHV: The HHV and LHV shall be determined using 1) ASTM D240-87 or ASTM D2382-88 ASTM D4809 for liquid hydrocarbon fuel; or 2) ASTM 1826-88 or ASTM 1945-81 in conjunction with ASTM D3588-89 for gaseous fuels.

9-9-605 Compliance With Output Based NOx Emissions Standards: For purposes of complying with the emissions standards in Section 9-9-301.2 and 9-9-302.2, emission rates expressed in lbs/MWhr shall be calculated in accordance with the following equations:

$$E = \frac{1.194X10^{-7} * (NOx)_c * Q_{std}}{(Pe)_t + (Pe)_c + Ps + Po}$$

E = hourly NOx emission rate, in lb/MWh
(NOx)c = Average NOx concentration, in ppmv adjusted to 15% O2
Qstd – stack gas volumetric flow rate, in dry scf/hr
(Pe)t = electrical or mechanical energy output of the combustion turbine in MW
(Pe)c = Electrical or mechanical energy output of the steam turbine (if any) in MW
Ps = useful thermal energy of steam production
Po = other useful heat recovery.

$$Ps = \frac{Q * H}{3.413X10^{6}\ Btu/MWh}$$

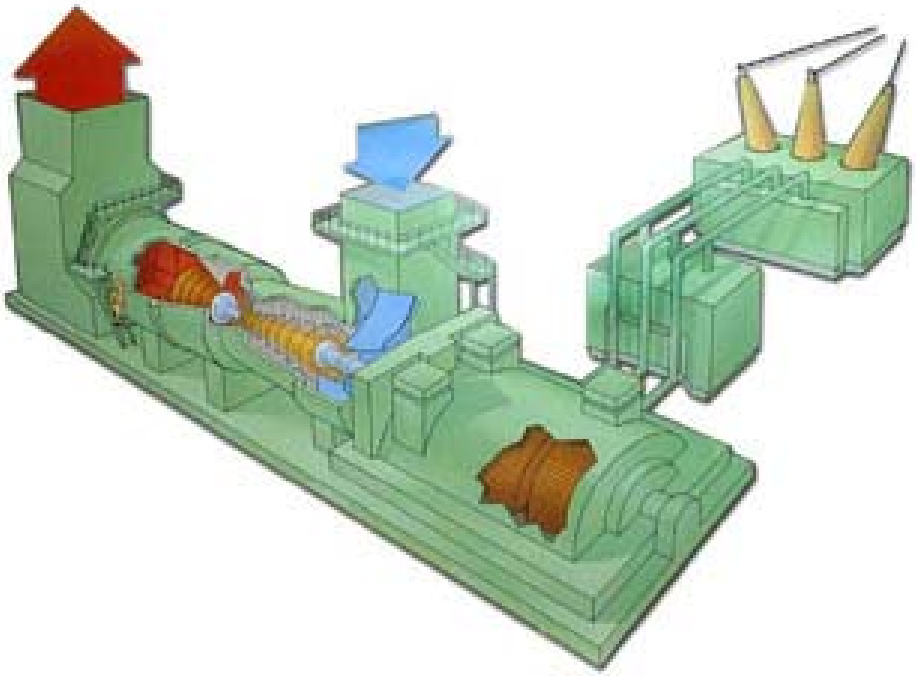
Q = measured steam flowrate in lb/hr.
H = enthalpy of the steam at measured temperature and pressure in Btu/lb.

Bay Area Air Quality Management District

939 Ellis Street
San Francisco, CA 94109

Bay Area 2005 Ozone Strategy
Control Measure SS 14

BAAQMD Regulation 9, Rule 9: Nitrogen Oxides from Stationary Gas Turbines



Staff Report
November 2006

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Planning, Rules and Research Division

REGULATION 9, RULE 9
Nitrogen Oxides from Stationary Gas Turbines

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I. EXECUTIVE SUMMARY

Staff of the Bay Area Air Quality Management District (BAAQMD or District) is proposing amendments to District Regulation 9, Rule 9: Nitrogen Oxides from Stationary Gas Turbines. The proposed amendments will require certain gas turbines in the Bay Area to be retrofitted with pollution control devices to reduce emissions of nitrogen oxides (NOx), one of the main contributors to ozone (smog) formation. Staff has developed these proposed amendments to implement Control Measure SS 14 in the Bay Area 2005 Ozone Strategy. The proposed amendments are expected to reduce NOx emissions from gas turbines by 0.43 tons per day, which combined with recent turbine shutdowns, is a reduction of approximately 10% from current levels.

The proposed amendments will:

- **Reduce NOx Emission Limits For Certain Classes Of Turbines.** Where turbines can feasibly be retrofitted to improve their NOx emissions performance, the proposed amendments lower the applicable NOx emissions limits to levels that can be achieved by the available retrofit technology.
- **Change the Way Turbine Size Is Measured To More Accurately Reflect Turbine Capacity.** The current rule measures turbine size by electrical generating capacity. This approach does not adequately account for other types of work produced by some turbines, such as steam or mechanical work. The proposed amendments classify turbines by heat input rate instead of electrical output in order to account for all of the work a turbine produces.
- **Provide "Output Based" NOx Emission Limits.** The proposed amendments specify alternative compliance standards based on the mass of NOx emitted per unit of work produced. These "output based" alternative standards will encourage energy efficiency, which supports efforts to reduce CO_2 emissions to address emissions related to global climate change.
- **Make Other Miscellaneous Changes to Improve Clarity and Enforceability.**

The proposed amendments are the culmination of a comprehensive rule development process that included dialog and visits with a large number of facilities, as well as two public workshops, in May and October 2006. Staff used the information gathered through this process to develop site-specific cost estimates for different types of NOx control retrofit projects, and validated them with equipment vendors. Staff assessed the impacts on each facility's capacity, thermal efficiency, and operating costs, and then developed the NOx emissions limit proposals by analyzing incremental cost-effectiveness of each of the technologies identified.

A socioeconomic analysis of the proposed amendments concludes that the amendments would not have significant economic impacts. An initial study of the proposed amendments conducted pursuant to the California Environmental Quality Act (CEQA) concludes that the rule amendments would not cause significant environmental impacts. Staff is proposing the approval of a CEQA negative declaration along with the proposed amendments.

II. BACKGROUND

A. Introduction

Ozone is the principal component of smog. Ozone is highly reactive, and at high concentrations near ground level can be harmful to public health. The Bay Area and neighboring regions are not yet in attainment with the State one-hour ozone standard, so further reductions in ozone precursors, nitrogen oxides (NOx) and reactive organic gases (ROG) are needed. Ozone forms when NOx chemically reacts with ROG. Ozone formation is higher in the summer when warm temperatures and strong sunlight facilitate the reaction.

The Bay Area 2005 Ozone Strategy continues on-going Bay Area efforts to reduce ozone precursors in order to assure that the region attains and maintains compliance with health-based ozone standards and to reduce transport to neighboring regions. The District is considering adopting amendments to Regulation 9, Rule 9 in connection with Control Measure SS-14 in the District's 2005 Ozone Strategy. In Control Measure SS-14, the District committed to evaluate emissions of NOx from stationary gas turbines and determine if recent advances in NOx emissions control technology could be implemented to further reduce NOx emissions from the stationary gas turbines in the Bay Area.

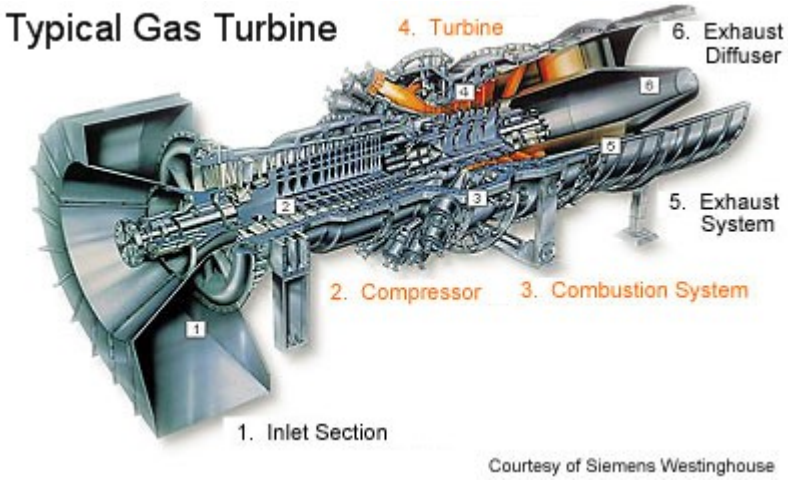
The Bay Area is also not in attainment for the California standards for particulate matter (both 10 microns in size and smaller [PM_{10}], and 2.5 microns and smaller [$PM_{2.5}$]). In the winter months, NOx and other pollutants react to produce secondary $PM_{2.5}$ in the form of nitrates. NOx reductions will have the added benefit of reducing secondary $PM_{2.5}$ formation.

B. Source Description

A gas turbine is an internal combustion engine that consists of a compressor, a combustor and a power turbine. The compressor provides pressurized air to the combustor where the fuel is burned. Hot exhaust gases enter the power turbine where the gases expand across the turbine blades, driving one or more shafts to power the compressor and an electric generator or other device. Stationary gas turbines are generally used to generate electricity, although some are designed to compress gases or pump water. Natural gas is the most common fuel, but gas turbines can burn refinery process gas, landfill or sewage digester waste gas, liquefied petroleum gas (LPG), and most liquid fuels.

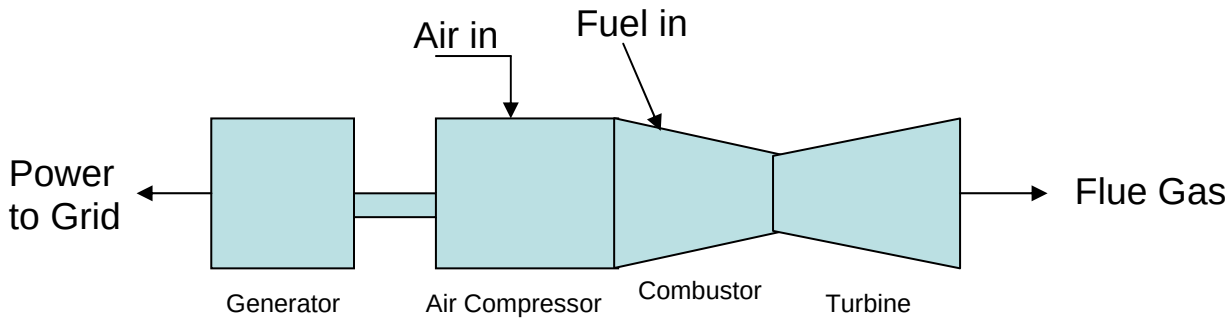
There are two major types of gas turbines. Industrial gas turbines, which evolved from aircraft jet engines, are generally more durable and powerful than aeroderivatives. Aeroderivatives are aircraft jet engines used in ground installations. Aeroderivatives are lightweight, compact and less powerful than industrial gas turbines. However, aeroderivatives operate at higher compression ratios and thus are more efficient than industrial gas turbines. Figure 1 shows a cutaway view of a typical gas turbine.

Figure 1



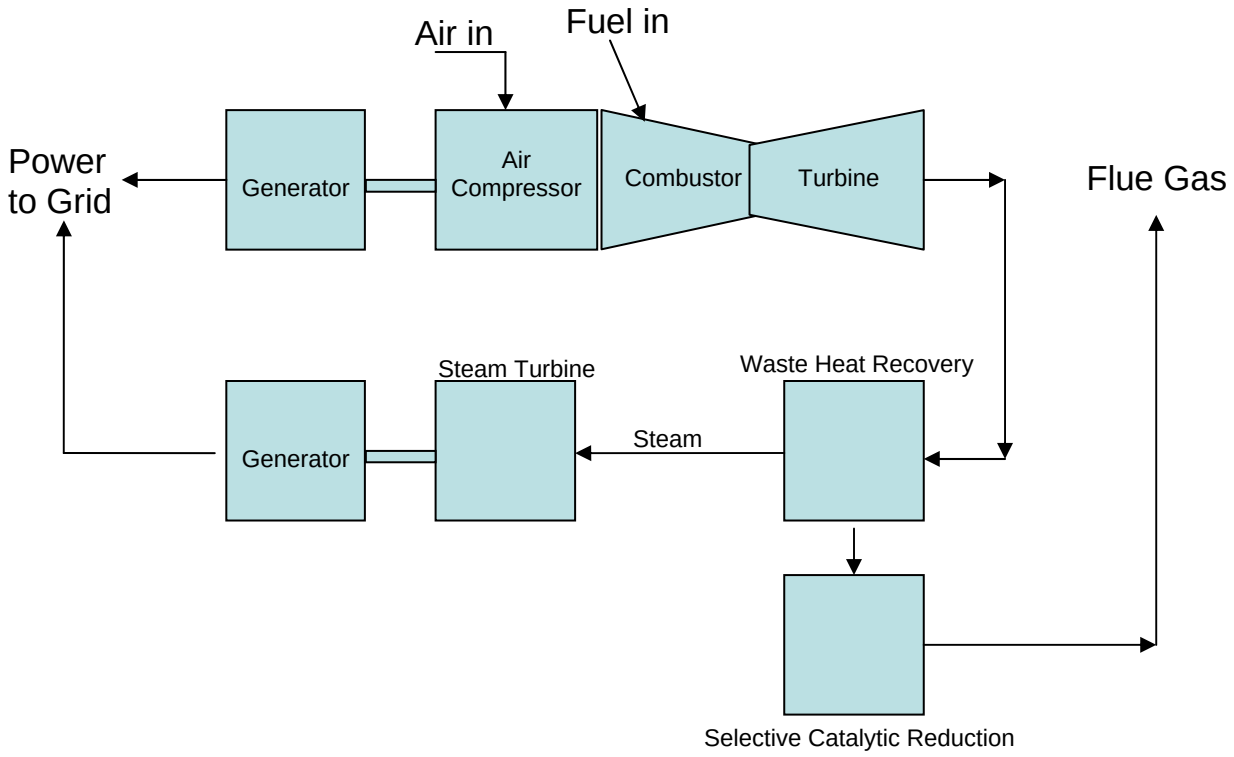
Gas turbines can be designed in two configurations. Simple cycle gas turbines do not recover secondary heat from the hot combustion gases for additional electrical or steam productivity, and therefore have a thermal efficiency between 25 and 41%. Simple cycle gas turbines have flue gas exhaust temperatures of 700 – 900°F. These gas turbines are generally used to supplement electricity during "peak" electrical demand periods, and are commonly referred to as "peaking" power turbines. Figure 2 is a schematic diagram of a simple cycle gas turbine.

Figure 2: Simple Cycle Gas Turbine



Combined cycle gas turbines recover the "waste heat" in the flue gas stream to produce additional electricity. Cogeneration gas turbines recover waste heat to produce steam for a wide variety of commercial uses. These plants have a thermal efficiency of 45 to 52% and flue gas exhaust temperatures of 300 – 500°F. These gas turbines are generally used for base load electrical generation. Figure 3 is a schematic diagram of a combined cycle gas turbine.

Figure 3: Combined Cycle Gas Turbine



There are 155 permitted turbines in the Bay Area. These units cover a wide range of sizes, fuels (natural gas, refinery or waste gas, or liquid fuels), operating configurations (simple cycle, cogeneration or combined cycle), operating modes (continuous, intermittent, or emergency standby), and existing NOx limits. These turbines currently emit an estimated 6.5 tons/day of NOx. These emissions were calculated based on a review of each permitted turbine's current fuel use, permit conditions, and source tests.

Ninety two of the 155 gas turbines operate continuously in a wide variety of applications. Forty three of these turbines are large, greater than 10 Megawatt (MW) capacity. Twenty one large gas turbines currently emit NOx below Best Available Retrofit Control Technology (BARCT) levels, as further described in Section IIIA. Another 10 large gas turbines are already equipped with NOx Selective Catalytic Reduction (SCR) systems. Thirteen are mid-sized turbines, ranging from 3 to 10 MW. Thirty six gas turbines are small, less than 3 MW, and do not generate enough NOx to be good candidates for any significant reductions beyond current requirements.

Of the continuously operating turbines, nine large and six mid-sized gas turbine power trains burn refinery fuel or waste gas as their primary fuel. Two large turbines burn diesel fuel. Refinery fuel gas, waste gas, and liquid fuels generate more NOx than natural gas, because it is more difficult to control turbine flame temperatures when burning a mixture of gases or liquids. There has been very little technology development effort to improve NOx performance from turbines burning gas or liquid mixtures, so options for significant improvements from these turbines are very limited.

Fifteen turbines operate intermittently as peaking power turbines. In spite of their low utilization, the largest of these intermittent use turbines may still be good candidates for NOx reductions. Forty eight turbines operate on a limited use basis, less than 877 hours per year. Eleven are used for testing and research, and 37 are used for standby/emergency power. Most of these turbines only operate a few hours each week, or are tested monthly.

A picture of a typical simple cycle gas turbine facility is shown in Figure 4.

Figure 4. Typical simple cycle gas turbine power generator

C. Current Retrofit Technology For Reducing NOx Emissions

There are two basic approaches for reducing NOx emissions: 1) minimize NOx generated during combustion; and 2) treat exhaust gases with various agents to reduce the NOx therein. The primary means for controlling generation of NOx emissions is to prevent NOx formation by cooling the flame temperature inside the combustion chamber in the gas turbine. In the earliest efforts to reduce combustion emissions, steam or water was injected into the combustor to absorb heat and cool the peak combustion temperature. A more recent approach is to regulate the flow of fuel into the combustor and thoroughly mix the fuel with the air using Dry Low NOx (DLN) combustion technology to reduce combustion temperatures. Most manufacturers have developed DLN technology for their new gas turbines, but offer retrofit DLN on only select models of their older gas turbines. A few manufacturers have incorporated catalysts into their combustor designs to achieve complete combustion at even lower flame temperatures.

The primary means to treat NOx emissions after they are created is by chemically reacting the NOx with ammonia or urea in the presence of a catalyst to convert the NOx back into nitrogen. This process is referred to as Selective Catalytic Reduction (SCR). This technology has demonstrated 90 - 95% effectiveness in reducing NOx.

D. Regulatory History

The 1988 California Clean Air Act (CCAA) set the state's overall air quality planning requirements. The CCAA requires the District to adopt BARCT for existing permitted stationary sources. The California Air Resources Board (ARB), in coordination with local air districts, developed a guidance document in 1992 entitled "Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for the Control of Oxides of Nitrogen from Stationary Gas Turbines" to aid local districts with the adoption of NOx regulations. The RACT/BARCT Guidelines included a suggested NOx control rule for air districts to use in developing their respective BARCT rules for the control of NOx from gas turbines. The District used this ARB guideline as a template for Regulation 9, Rule 9. Regulation 9, Rule 9 was adopted pursuant to the region's first plan prepared under the CCAA's ozone planning requirements, the Bay Area 1991 Clean Air Plan (CAP). Regulation 9, Rule 9 was adopted on May 5, 1993, and amended on September 21, 1994 to accommodate a delay in development of combustion technology necessary to meet the NOx standards. By January 1, 1997 all gas turbines subject to the regulation were required to be in compliance with all applicable standards.

E. Current Rule

The current rule sets NOx emission limits for various classes of turbines based on turbine size (measured by electrical generating capacity), with the largest turbines subject to the most stringent standards. The rule also provides slightly higher limits for turbines that burn refinery fuel gas or liquid fuel, because those fuels burn hotter and therefore generate more NOx. The standards in the current rule are summarized in Table 1:

Table 1: Current Regulation 9, Rule 9 Emissions Limits

Turbine Size	NOx Emission Limit (ppm)		
	Natural Gas	Refinery Fuel Gas	Oil
< 0.3 MW	Exempt	Exempt	Exempt
> 0.3MW and < 10MW	42	55	65
> 10MW, without SCR	15	15	42
> 10MW, with SCR	9	9	25

For turbines over 10 MW, the current rule also provides a credit for high thermal efficiency. More efficient units use less fuel, resulting in less total emissions. Turbines with a design efficiency of greater than 25% are allowed to adjust their emission limits to higher levels based on how efficient they are.

The current rule also provides separate emission standards for low-usage turbines, defined as turbines that operate less than 877 hours per year (approximately 10% of the time). These turbines must meet a 42 ppm NOx emission limit when burning natural gas and a 65 ppm limit when burning liquid fuel. Small low-usage turbines (less than 4 MW) are exempt from the rule.

Since the current rule was adopted, there have been improvements in turbine emission control devices. In 1999, ARB published "Guidance for Power Plant Siting and Best Available Control Technology" which identified possible controls for new, large (> 50 MW) power generating turbines. Other districts, including the South Coast AQMD and the San Joaquin Valley Unified Air Pollution Control District, have updated their gas turbine rules to reflect these developments. The Bay Area AQMD is similarly revisiting its rule through Control Measure SS-14 and these proposed amendments.

III. PROPOSED RULE AMENDMENTS

A. Introduction

The California Clean Air Act requires that the District adopt "every feasible measures" to reduce air pollution. *See* Health & Safety Code § 40914(b). In addition, California Health & Safety Code section 40919(a)(3) directs the District to require the use of Best Available Retrofit Control Technology (BARCT), which is defined as "the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source." In accordance with these statutory mandates, staff has evaluated the NOx control technologies available for stationary gas turbines to determine the most stringent requirements that would be technically and economically feasible for each class of turbine in the Bay Area.

It is important to note that Regulation 9, Rule 9 and the proposed amendments address existing turbines already in use in the Bay Area. When new turbines are installed (or when existing turbines undergo a major modification), they are subject to the more stringent "Best Available Control Technology" (BACT) requirements of District Regulation 2, Rule 2. BACT emissions controls can now achieve less than 2–2.5 parts per million (ppm) NOx from combined cycle or cogeneration gas turbine trains, and less than 5 ppm NOx from simple cycle gas turbine configurations. The proposed amendments address technologies that can be used to retrofit existing turbines to improve their emissions performance. Retrofitting existing equipment is typically not as effective as incorporating NOx control technology directly into the design of new equipment. It is therefore not feasible to achieve the very low BACT emissions performance levels of new turbines with BARCT retrofit technology applied to existing turbines. As new units come on line and older units are retired, however, the Bay Area will move towards the lowest BACT levels at all turbines.

The retrofit control technology currently available for existing turbines includes improvements in water and steam injection methods, DLN combustion technology, and improvements in the performance of SCR catalysts that have occurred since this rule was last amended in 1994. (These technologies are described in more detail in Section II.C.

above.) Staff has evaluated which of these technologies are feasible for particular classes of turbines. The proposed amendments are based on the most effective technology feasible.

This section outlines what the proposed amendments will require for each class of turbine. The discussion addresses turbines in full-time use first, and then addresses limited-use turbines that operate less than 877 hours per year (10% of the time), which require special consideration because their limited usage means that they are not producing as much NOx even without retrofits. The other miscellaneous changes that would be made by the proposed amendments are described at the end of this section.

B. Turbines in Full-Time Use

The NOx emissions performance that can be feasibly achieved with retrofit controls depends on the size and application of the gas turbine. Small turbines generate less NOx, so control techniques for these turbines are very different than those for large combined cycle or cogeneration gas turbines. In addition, some units are distributed power generators located in space-constrained locations that may not physically have the room for large retrofit control systems. The proposed amendments therefore categorize turbines by size, with more stringent controls required for the larger units.

The proposed amendments also change the metric by which turbine size is measured in order to more accurately reflect the true capacity of each unit. Turbine size is currently measured in terms of megawatts (MW) of electrical generation. However, this approach does not reflect other types of energy generated by some turbines, such as steam or mechanical energy. Staff therefore proposes to use heat input instead of electrical generating capacity to determine turbine size. Heat input captures all types of energy generated by a turbine, and is also more directly related to emissions generated. Gas turbines and cogeneration or combined cycle facilities have widely different thermal efficiencies, which can create inconsistencies in the turbine categories. Staff has found that categorizing turbine size by heat input, commonly referred to as turbine heat input rating is a much more direct method. Turbine heat input for the gas turbine's nameplate rated output at standard conditions is a common design parameter, and characterizes turbine size directly. The proposed amendments contain a definition of turbine heat input rating, which would be measured in millions of British thermal units per hour (MMBtu/hr). (For ease of reference, this Staff Report will refer to turbine sizes by both heat input rating in MMBtu/hr and the approximate equivalent electrical generating capacity in MW.)

The proposed amendments for each class of turbines are set forth below, and are summarized in Table 2 at the end of the discussion.

Very Small Gas Turbines: The proposed amendments retain the current exemption for all gas turbines less than 5 MM Btu/hr turbine heat input rating (~ 0.3 MW equivalent). These gas turbines are not large enough to justify requiring NOx emissions controls.

Small Gas Turbines: For facilities with turbine heat input ratings from 5 to 50 MM Btu/hr. (~0.3 to 3.0 MW equivalent), staff is not proposing any changes to the existing emission limits. These units provide little opportunity for significant NOx reductions.

Mid-size Gas Turbines: For facilities with turbine heat input ratings from 50 to 150 MM Btu/hr (~3.0 to 10 MW equivalent), there are two types of retrofit control technology that are feasible: enhanced water or steam injection, and DLN combustion technology. The proposed amendments establish NOx emission limits based on the performance achievable by commercially available technologies for each make and model of turbine and for the type of fuel.

If water or steam injection enhancement technology is commercially available for a particular combination of turbine and fuel, the proposal reduces the NOx limit to 35 ppm. These enhancements are technically and economically feasible. Cost ranges from $7,000 to $19,000 per ton of NOx reduced.

If DLN combustion technology is commercially available for a particular combination of turbine and fuel, the proposal reduces the NOx limit to 25 ppm. This technology has a cost ranging from $15,000 to $18,000 per ton of NOx reduced.

If no retrofit technology is commercially available for the specific make and model of gas turbine, with its specific fuel, the proposal retains the NOx emission limit at 42 ppm.

The proposed amendments recognize that water or steam injection enhancements or DLN combustion technology systems are not available for all existing units and fuel combinations. Even some that are available may not meet the required emissions limit. The proposed amendments therefore include a definition of "commercially available" to make it clear when an operator must retrofit a turbine. The definition of "commercial availability" requires that the technology retrofit system be offered by at least one vendor, be guaranteed to achieve the required emission control performance for the specific make and model of turbine, and have been demonstrated in practice to achieve the required emissions control performance using a similar fuel composition.

Water/steam injection enhancements and DLN combustion technology may be developed in the future for some existing turbines in the Bay Area. The proposal requires that turbine operators retrofit a turbine if and when these technologies become commercially available for the particular type of turbine and type of fuel burned, and provides a mechanism for compliance in such situations. If and when these specific technologies become commercially available for a particular make and model of turbine and type of fuel, the District will make a determination that the technology is commercially available and will notify the operators of all such turbines within the District. If a facility cannot meet the more stringent NOx emissions limit, this notification will start the compliance timeline for planning, permitting, acquisition and installation of new equipment, including the requirement for an application for Authority to Construct within 18 months, and compliance within 36 months. Facilities will also be provided with an appeal process should they disagree that the new technology is in fact commercially available for their

make and model of turbine. The proposed amendments also make clear that no turbine will be required to retrofit more than once, for example by installing enhanced water or steam injection if and when it becomes commercially available and then having to install DLN technology later if and when that technology becomes commercially available. Successive retrofits would be very costly and would not provide commensurate NOx-reduction benefits.

Large Gas Turbines: For facilities with turbine heat input ratings from 150 to 250 MM Btu/hr (~10 to 18 MW equivalent), the proposed amendments retain the current emissions standard of 15 ppm. These gas turbines already have enhanced water or steam injection or DLN combustion technology installed in order to achieve the existing 15 ppm NOx emission limit. The potential for further reduced NOx is limited, and the use of control technology such as SCR is costly. Accordingly, staff is not recommending additional control for this class of turbines at this time. Staff will continue to monitor developments in SCR and DLN technology and will consider further amendments if the situation changes.

Larger Gas Turbines: For facilities with turbine heat input ratings from 250 to 500 MM Btu/hr (~18 to 40 MW equivalent), staff proposes to lower the emission standard to 9 ppm. For facilities without an SCR system, this represents a reduction in NOx limits from 15 ppm to 9 ppm. (Facilities with an SCR system are already subject to the 9 ppm limit.) All six turbines in this category are already achieving 9 ppm NOx. The proposed amendments will lock in that level of performance and prevent backsliding. Staff considered a further reduction to 5 ppm, which would require installation of state-of-the-art DLN, a new SCR, or enhancements to the existing SCR. Since the NOx reductions from 9 ppm to 5 ppm are modest, however, staff is not recommending requiring additional reductions for this class of turbines at this time. As with the 150 to 250 MM Btu/hr turbines, staff will continue to monitor technological progress and will consider further amendments if the situation changes.

Largest Gas Turbines: For facilities with turbine heat input ratings greater than 500 MM Btu/hr (~40 MW plus), staff proposes an emissions standard of 5 ppm. For facilities without an SCR system, this represents a reduction in the NOx limit from 15 ppm to 5 ppm. For facilities with an existing SCR system, this proposal represents a reduction in the NOx limit from 9 ppm to 5 ppm. To comply with this limit, turbines in this size category will have to:

- enhance their SCR and ammonia injection system;
- install an SCR system; or
- install state-of-the-art DLN.

SCR systems and state-of-the-art DLN are very expensive, but for these largest gas turbines the NOx reductions are also significant. Costs range from $10,000 to $20,000 per ton of NOx reduced. For facilities that already have SCR systems, several facilities confirmed that additional ammonia injection reduced NOx emissions as required under the proposed amendments. Maintenance of ammonia injection equipment and SCR catalyst replacement may be required for some facilities.

Emissions Limits For Turbines Burning Fuels Other Than Natural Gas: Most gas turbines burn natural gas because it is readily available in most locations, it is the cleanest burning fuel and very consistent in quality and heating value. As a result, most of the low NOx research and development work for gas turbines has been focused on use of natural gas. However, some turbines do burn refinery process gas, landfill gas, or vaporized LPG. Each of these fuel sources has either a higher heating value, more variation in heating value, or both. These factors create hotter flames and generate more NOx in the combustion chamber. Gas turbines burning these fuels generate higher NOx, and have fewer retrofit technology options available. The proposed amendments therefore establish higher NOx emission limits for turbines burning these other fuels to reflect the fact that they cannot realistically meet the same limits as natural gas turbines.

The proposed amendments also broaden the definition of these other fuels beyond refinery process gas to include waste gas (generally landfill gas or sewage digester gas), LPG, and mixtures of any of these fuels with natural gas. They also provide for situations where gas turbines burn a mixture of fuels. This typically occurs in a refinery or at a landfill, where the normal fuel is refinery fuel gas or landfill waste gas, but can be supplemented with natural gas. This can also occur when natural gas may be supplemented by vaporized LPG. In these cases, the mixture of fuels will almost always burn with a higher flame temperature than natural gas alone, resulting in higher NOx emissions. The NOx emission limit for the mixture should therefore be the highest of the limits applicable to any of the fuels in the mixture.

The limits applicable to particular classes of turbine when burning different fuels are summarized below in Table 2. For turbines with a heat input rating between 5 and 150 MMBtu (~0.3 to 10 MW) that burn refinery process gas, Staff is proposing to reduce the NOx emissions limit from 55 ppm to 50 ppm, because several gas turbines that burn refinery process gas have steam injection enhancements available. These retrofit enhancements will reduce NOx generation by approximately 20%. This NOx reduction is technically and economically feasible. Staff proposes no changes to the NOx emissions limits for gas turbines burning liquid fuels. There are no gas turbines operating full time in the Bay Area burning liquid fuels.

Alternative "Output Based" Emission Standards: The current regulation's emission limits are based on concentrations of NOx in turbine exhaust, expressed as parts per million (ppm). The proposed amendments continue to express the emissions limits in ppm, but also provide an alternative expression in terms of the mass of NOx emitted per unit of useful work generated by the turbine, quantified as pounds per megawatt-hour (lb/MW-hr). Turbine operators would be able to use either the concentration (ppm) limit or the mass (lb/MW-hr) limit to determine compliance.

Expressing emission limits in terms of pounds per megawatt-hour encourages energy efficiency as a preventive means to reduce emissions, because a more efficient turbine generating more megawatt-hours from a given amount of fuel will be rewarded with a higher effective NOx limit than a less-efficient turbine. The current rule attempts to achieve this result by allowing an upward adjustment in the ppm emission limits based on

thermal efficiency, but the adjustment is available only for large turbines over 10 MW, and it requires an efficiency adjustment calculation comparing each turbine's thermal efficiency to a 25% efficiency benchmark. Using a lb/MW-hr standard improves on this approach because it incorporates energy-efficiency directly, without the need for an adjustment calculation, and because it extends the energy-efficiency benefits to all classes of turbines.

The Environmental Protection Agency (EPA) has encouraged this approach in its revised Standards of Performance for Stationary Combustion Turbines, which were published on July 6, 2006. (*See* 71 Fed. Reg. 38482 (July 6, 2006), to be codified at 40 C.F.R. pt. 60, subpt. KKKK.) EPA calls these limits "output based" emissions standards. EPA recommends basing the lb/MW-hr limits on 25% thermal efficiency for the less than 50 MM Btu/hr turbine category; 27% thermal efficiency for the 50 to 500 MM Btu/hr turbine categories, and 44% thermal efficiency for the greater than 500 MM Btu/hr turbine category. Staff used these recommended guidelines in developing the lb/MW-hr limits that are consistent with the volumetric NOx concentration (ppm) limits.

EPA also recommended allowing facilities to comply with either the volumetric NOx concentration (ppm) limit, or the output-based lb/MW-hr limit. As a gas turbine increases in firing load from 60–70% load up to maximum 100% load, the thermal efficiency of the gas turbine can vary. Since the concentration (ppm) limits are consistent with the output-based limits at the base thermal efficiencies, compliance with either is appropriate. The proposed amendments would phase out the thermal efficiency adjustment for the concentration (ppm) limits after the new standards come into effect in 2010. However, in order to encourage facilities to shift to the output-based standards, facilities will still be able to use the concentration (ppm) standard to comply after 2010, but will not be allowed the benefit of the thermal efficiency adjustment.

The proposed new standards for NOx emissions from turbines in full-time use are shown in Table 2.

Table 2
Proposed NOx Emission Limits for Full Use Turbines

Turbine Heat Input	Fuel		
	Natural Gas	Refinery Gas/ Landfill Gas / LPG	Liquid Fuel
< 5 MM Btu/hour (< ~0.3 MW)	Exempt	Exempt	Exempt
5 – 50 MM Btu/hour - (~ 0.3 – 3 MW)	2.12 lbs/MW hr or 42 ppm	2.53 lbs/MW hr or 50 ppm	3.28 lbs/MW hr or 65 ppm
> 50 – 150 MM Btu/hour - (~ 3 – 10 MW) • no retrofit available • WI/SI enhancement available • Where DLN technology available	1.97 lbs/MW hr or 42 ppm 1.64 lbs/MW hr or 35 ppm 1.17 lbs/MW hr or 25 ppm	2.34 lbs/MW hr or 50 ppm	3.04 lbs/MW hr or 65 ppm
> 150 – 250 MM Btu/hour - (~ 10 – 19 MW)	0.70 lbs/MW hr or 15 ppm	0.70 lbs/MW hr or 15 ppm	1.97 lbs/MW hr or 42 ppm
> 250 – 500 MM Btu/hour – (~ 19 – 40 MW)	0.43 lbs/MW hr or 9 ppm	0.43 lbs/MW hr or 9 ppm	1.17 lbs/MW hr or 25 ppm
> 500 MM Btu/hour – (~ 40+ MW)	0.15 lbs/MW hr or 5 ppm	0.26 lbs/MW hr or 9 ppm	0.72 lbs/MW hr or 25 ppm

C. Limited Use Turbines

Approximately one third of the gas turbines in the Bay Area operate on a limited use basis, less than 877 hours per year (less than 10% of the time). These gas turbines are generally used for testing and research, or for emergency/standby power requirements. Limited-use gas turbines smaller than 4 MW are currently exempt from any NOx emission limits. Limited use gas turbines 4 MW and larger are subject to a 42 ppm NOx emission limit if they burn natural gas, or a 65 ppm NOx standard if they burn liquid fuel. None of these gas turbines burns refinery process gas, waste gas or LPG.

These units are generally simple-cycle operations, which have higher exhaust gas temperatures (greater than 800^{o}F). High-temperature SCR systems are being developed that can control these units, but initial installations have experienced problems meeting design emission levels. Water injection systems are available, however, and provide NOx control below 25 ppm for units burning natural gas, and below 42 ppm for units burning liquid fuels. For turbines that are not operated very often, retrofitting with new control technology has less of an emissions reduction benefit because their infrequent use means

that they generate fewer emissions to begin with. Justification for possible control options is more challenging. However, since emissions from one of these plants operating only 1/10th of the year are approximately equal to a new turbine with BACT emission levels operating all year, and in many cases the bulk of the emissions occur during the summer ozone season, their emissions warrant scrutiny.

The proposed amendments would affect the various classes of limited-use turbines as follows:

Small Gas Turbines: For limited-use turbines with heat input ratings less than 50 MM Btu/hr (~ less than 3.0 MW equivalent), staff is not proposing any changes. These gas turbines will remain exempt. Staff is proposing to change the exemption threshold from 4 MW in the current rule (about 67 MM Btu/hr) to a 3 MW-equivalent size limit (50 MM Btu/hr) to make the small size category consistent with the small size category for full-time use turbines. However, there are no limited use turbines in the 50 – 67 MM Btu/hr turbine range, so the change will not have any practical effect. The change is proposed to clarify the rule.

Medium and Large Gas Turbines: For limited-use turbines with heat input ratings from 50 to 150 MM Btu/hr (~ 3.0 to 10.0 MW equivalent), and from 150 to 250 MM Btu/hr (~ 10.0 to 18.0 MW equivalent), staff is not proposing any changes to the existing emission limits. NOx emission limits will remain at 42 ppm for turbines that burn natural gas, and 65 ppm for those that burn liquid fuel. Equivalent output-based NOx emission limits are provided using the same thermal efficiency bases as defined for full use turbines.

Larger and Largest Gas Turbines: For limited-use turbines with heat input ratings from 250 to 500 MM Btu/hr (~ 18 to 40 MW equivalent), and over 500 MM Btu/hr (greater than ~ 40 MW equivalent), the proposed amendments reduce the NOx emission limits. These units are generally large simple-cycle gas turbines that are used for meeting peak electrical demands. NOx control is generally achieved by water injection. Enhanced water injection technology is commonly available, as it has been developed for gas turbines that are in full time operation. Staff recommends reducing NOx emission limits from 42 ppm to 25 ppm for those turbines burning natural gas, and from 65 ppm to 42 ppm for those turbines burning liquid fuels. The water injection enhancements that will be required to meet these new standards for the largest of turbines operating close to 877 hours will cost $15,000 per ton of NOx reduced. The proposed amendments also provide equivalent output-based NOx emission limits in lbs/MW-hr, using the same thermal efficiency bases as defined for full use turbines.

Very Low Use Turbines: Requiring retrofits is not justified at this time for very low-use turbines such as standby/emergency generators, which may operate only a few hours per year. Under normal circumstances, these turbines are operated only for system and reliability checks and to conduct source tests and therefore emit only small amounts of NOx. The cost of requiring retrofits for these turbines would not be appropriate at this time unless they are operated near their 877 hour limits. The proposed amendments

therefore provide a qualified exemption from the new low-usage limits for any turbine that operates less than 400 hours per year (less than 5% of the time), based on a review of operating hours over the previous 3 year period.

To qualify for this exemption, operators must keep records of their hours of operation, which must be retained and made available to District inspectors for review. If a turbine reaches 400 hours of operation in any 12-month period, the operator is required to notify the District of the fact that it has reached the 400 hour threshold and must provide its best estimate of the extent of future operation. If the District determines that the turbine exceeded the 400-hour limit because of unusual circumstances that are not likely to recur, the turbine will continue to be exempt from the new, lower standards. If the District determines that the turbine is likely to continue to be used over 400 hours per year in the future, it will determine which category the turbine will most likely fall into (*e.g.*, standby usage of up to 877 hours per year, or "full-time use" of more than 877 hours per year). The operator will then have a 36-month compliance timetable for planning, permitting, acquisition and installation of new equipment that may be required to meet the applicable standards. The qualified exemption will continue in effect during this compliance period, but will expire at the end of the period leaving the turbine subject to the new lower limits. Operators should also note that this qualified exemption applies only to the new lower limits that are being proposed in Section 9-9-302.2. Turbines that qualify for the exemption will still be subject to the current low-usage standards in Section 9-9-302.1, in order to prevent backsliding.

The proposed standards for NOx emissions from limited-use turbines are shown in Table 3.

Table 3
NOx Emission Limits for Limited Use Turbines
(Less than 877 hours per year)

Turbine Heat Input	**Fuel**		
	Natural Gas	Refinery Gas/ Landfill Gas / LPG	Liquid Fuel
< 50 MM Btu/hour	Exempt	Exempt	Exempt
50 – 150 MM Btu/hour (3 – 10 MW)	1.97 lbs/MW hr or 42 ppm	N/A	3.04 lbs/MW hr or 65 ppm
> 150 – 250 MM Btu/hour (10 – 19 MW)	1.97 lbs/MW hr or 42 ppm	N/A	3.04 lbs/MW hr or 65 ppm
> 250 – 500 MM Btu/hour (19 – 40 MW)	1.17 lbs/MW hr or 25 ppm	N/A	1.97 lbs/MW hr or 42 ppm
> 500 MM Btu/hour (40+ MW)	0.72 lbs/MW hr or 25 ppm	N/A	1.21 lbs/MW hr or 42 ppm

Emergency Use: In the event of an emergency declared by federal, state or local authority, the proposed amendments allow the turbine to be used without triggering the more stringent standards in Section 9-9-301 for full use turbines. For example, if an earthquake were to disrupt power generation capacity and cause a fire, and the only the only available power were from limited use turbines that have reached their 877 hour limit, those turbines could be operated to put out the fire.

D. Other Amendments

Compliance schedules: The proposed amendments set January 1, 2010, as the effective date for these new emission limits. Staff proposes June 30, 2008, as the deadline for each facility to submit an application for an Authority to Construct to the District in order to bring their facility into compliance. This timeframe should provide retrofit technology suppliers adequate time to finalize demonstration of any viable retrofit technology products and still allow operators sufficient time to plan and carry out their retrofit projects. Any additional development of enhanced water or steam injection, or DLN for specific makes and models of turbines will apply as the technology becomes commercially available using a similar 18 month timeframe for application for Authority to Construct, and 36 months to achieve compliance.

These retrofit projects are often most effectively executed during a planned major maintenance outage. If a facility does not have a planned major maintenance outage before the compliance deadline of January 1, 2010, the proposed amendments allow the facility to wait until the next planned major maintenance outage to complete the retrofit. Compliance with the new emission limits is then required 30 days after completion of the major outage, but no later than December 31, 2012.

Averaging periods for NOx excursions: For purposes of compliance with the rule's standards, NOx emissions are averaged over a certain time period in order to account for short-term fluctuations in NOx output. There has been inconsistency in the averaging periods used for turbines in the Bay Area, however. Permit conditions vary, prescribing one hour to three hour averaging periods. To help eliminate this inconsistency, the proposed amendments specify a standard averaging period for determining compliance with the rule.

BACT and BARCT standards across the nation are very consistent in specifying a NOx emissions standard with 3 hour averaging, or the NOx emission standard plus 0.5 ppm with 1 hour averaging. Staff has determined that a 3-hour averaging period is the most appropriate, based on a review of each NOx excursion that occurred in the Bay Area from January 1, 2005 through June 20, 2006. Staff found that the three hour averaging period allows for a NOx emissions limit 10% lower than it would be with one hour averaging. This reduces total NOx emissions in the Bay Area. Three-hour averages will be calculated in accordance with the District's Manual of Procedures, which currently specifies averaging emissions over three consecutive "clock hours". This approach is also consistent with the time frame used for District source tests, which are conducted by measuring emissions over three 30-minute periods normally spread over approximately

three hours. Source test results are very representative of emissions over a 3-hour period, and so the proposed amendments specify that either Continuous Emissions Monitor (CEM) measurements or a source test result can be used to establish compliance with or violation of the applicable emission limits.

Elimination of the Thermal Efficiency Adjustment: As described above, the current rule has a thermal efficiency adjustment for NOx emission limits to encourage efficiency, or pollution prevention. The proposed amendments establish alternative output-based NOx limits (lb/MW-hr) to provide an improved approach to achieving the same end. The thermal efficiency adjustment will continue until the new NOx emissions standards come into effect on January 1, 2010. The thermal efficiency adjustment will then no longer apply. In order to encourage operators to shift to using the output-based (lb/MW-hr) standards, facilities may still comply using the volumetric NOx concentration limit (ppm), but without the benefit of the thermal efficiency adjustment.

Inspection and Maintenance: The current definition of inspection and maintenance period is focused primarily on state mandated inspection and repair requirements for Heat Recovery Steam Generator systems. During the rule development process, some facilities pointed out that other inspection and maintenance issues can require significant alterations in the gas turbine operation. Often, the transitions of shut down and startup generate more NOx emissions than the alternative of high NOx operation for a few hours to complete an inspection or maintenance task. A proposed amendment provides an exemption for other required inspection and maintenance work. This work must be planned and scheduled at least 24 hours in advance, and limited to 4 hours duration. If the work requires longer than 4 hours, the unit should be shutdown. Emissions during these minor inspection and maintenance periods are to be included in the total emissions annual limit identified in the turbine's operating permit.

Startup and shutdown periods: Due to the nature of their operation and design, turbines must operate within normal operating pressure and temperature ranges to achieve low NOx emissions. In addition, emission control devices, especially SCR, are very temperature sensitive. When turbines are starting up and shutting down they cannot maintain the operating parameters and temperatures necessary to keep NOx emissions within the rule's standards. The current rule therefore provides exemptions from the emissions standards for up to three hours during startup and up to one hour during shutdown to allow the time required to transition to and from normal operating conditions.

Several facilities have difficulty starting up their more complex units within the three hour startup exemption window. They are using the three-hour averaging period at the end of the startup exemption to complete the startup and remain within compliance. Most facilities requested an additional hour for startup, and an additional hour for shutdown. The intent of these exemptions is to provide adequate time for execution of the normal startup and shutdown sequences. Staff proposes increasing the startup exemption to 4 hours, and the shutdown exemption to 2 hours. For many facilities, this is necessary to comply with the more stringent standards.

Combined cycle facilities have a unique startup problem, in that they need 6 hours to get the entire facility on-line when starting up from a cold condition. These facilities take 3-4 hours to get the gas turbine and heat recovery steam generator operating at steady state, and then an additional 2 hours to get the steam turbine warmed, started and operating at steady state. The proposed amendments create a new 6-hour startup exemption for combined cycle facilities when going through a "cold steam turbine" startup.

Annual Compliance Testing: Facilities that have CEMs provide NOx emissions data for all operating periods. Smaller facilities that do not have CEMs require source tests in order to demonstrate that they are operating within the applicable NOx emission limits. The proposed amendments require a District-approved source test once a year, at intervals not to exceed 15 months.

The annual source test is proposed to be required every other year for very limited-use turbines (operated less than 400 hours per year). Where a turbine is not used very often, it can be difficult to schedule a source test during a period of normal operation. In such a situation, the operator may be forced to start up the turbine solely for purposes of conducting the test, which would create unnecessary NOx emissions. The proposed amendments therefore reduce the requirement to every second year for facilities that operate less than 400 hours in a 12 month period.

Use of Interchangeable Emission Reduction Credits (IERCs): Several facilities inquired whether IERCs could be used to comply with the proposed more stringent NOx emissions limits. IERCs are emission credits generated by early voluntary reductions in emissions which can be used to achieve compliance with other regulatory requirements later. Health and Safety Code Section 39607.5 requires the District to provide this alternative means of compliance. The requirements regarding IERC creation and use are set forth in District Regulation 2, Rule 9.

Affected facilities will be able to use IERCs to comply with the proposed amendments, subject to the requirements of Regulation 2, Rule 9 and any other legal restrictions, such as EPA's prohibition on using IERCs to comply with District rules that have been adopted as part of California's federal State Implementation Plan. The proposed amendments include a provision making this clear. The provision is intended simply to inform operators about the availability of IERCs, and is not intended to expand or restrict any rights or obligations associated with IERC use under existing laws and regulations.

Minor Clarifications to Rule Language: The proposed amendments include some new definitions, clarify several existing definitions, and eliminate obsolete rule language.

IV. EMISSIONS AND EMISSION REDUCTIONS

Emissions from stationary gas turbines include all the products of combustion. The primary concern with emissions from gas turbines in the Bay Area is NOx. Gas turbines also produce minor amounts of carbon monoxide (CO), sulfur oxides (SOx), organic

compounds, and particulates (PM), but the contribution from gas turbines for each is relatively insignificant in the total emission inventory for the Bay Area. Combustion in stationary gas turbines also produces carbon dioxide (CO_2), a growing concern with respect to climate change.

Some NOx is formed from combustion of nitrogen in the fuel (fuel NOx), but the primary source of NOx is from the oxidation of nitrogen in the air (thermal NOx). Most gas turbines in the Bay Area burn only natural gas, which is negligible in nitrogen content. A few gas turbines can burn liquid fuels (propane, butane, jet fuel or diesel fuel), but the nitrogen content in these fuels is also very low.

CO comes from incomplete combustion. CO limits are normally included as a District permit condition for each turbine. Lean premix combustion design generates excellent combustion efficiency: CO emissions are typically 10-50 ppm from natural gas, and 20-50 ppm from diesel fuel. The District is not considering any action at this time with respect to CO limits as part of possible amendments to Regulation 9, Rule 9. Organic compound emissions are also controlled by combustion efficiency, so no standard is recommended. Particulates are generated by trace non-combustible constituents in the fuel. PM emissions are negligible when natural gas is burned. PM emissions are only marginally significant with distillate fuels. The District is not contemplating regulatory action with respect to organic compounds or PM as part of possible amendments to Regulation 9, Rule 9. However, as noted in Section II.A, NOx reductions will help reduce formation of secondary PM, such as ammonium nitrate.

The NOx emissions from stationary gas turbines in the Bay Area total 6.5 tpd. Recent shutdown of three gas turbine facilities has already reduced these emissions by 0.23 tpd. The proposed amendments will reduce NOx emissions by almost 7%, 0.43 tpd, reducing the NOx emissions from gas turbines by a total of 0.66 tpd. Additional NOx reductions may occur sporadically from the low use gas turbines that operate less than 877 hours per year. These NOx reductions are not included in the emissions reduction estimate, because they occur less than 10% of the time. Low-usage "peaking power" turbines tend to operate more in the summer months when electrical demand is highest, however, so any reductions from these facilities will come at the most opportune time of the year, when ozone concentrations are higher. In addition, if water or steam injection enhancements or DLN technology becomes commercially available for additional turbines in the future, further reductions would be achieved from those turbines.

V. ECONOMIC IMPACTS

A. Compliance Costs

This section describes the costs to the affected gas turbine operators for each proposed amendment. Not all turbines in each of the proposed size categories are affected, as explained in Section III – Proposed Amendments.

Full Use Mid-size Gas Turbines: Turbines with heat input ratings from 50 to 150 MM Btu/hr (~3.0 to 10 MW) operated over 877 hours per year will have to reduce emissions

from 42 ppm to 35 ppm if enhanced water injection or steam injection retrofits are commercially available, and from 42 ppm to 25 ppm if Dry Low NOx technology is commercially available.

Where commercially available, water or steam injection enhancement technology is technically feasible and costs vary from $200,000 to more than $1,000,000 per turbine in capital costs, depending on the modifications required. There is very little impact on operating costs. Costs range from $7,000 to $19,000 per ton of NOx reduced.

Where commercially available, DLN technology costs between $1,000,000 to $2,000,000 per turbine in capital costs. There is very little impact on operating costs. Costs range from $15,000 to $18,000 per ton of NOx reduced.

If no retrofit technology is commercially available for the specific make and model of gas turbine, with its specific fuel, then staff recommends retaining the NOx emission limit at 42 ppm. There would be no cost impact on such turbines.

Where water or steam injection enhancement or DLN technology becomes commercially available in the future, the cost impacts are expected to be similar to the costs outlined above. These are well-defined technologies that have been in use for a long time, even though they are not currently commercially available for every make and model of turbine. It is unlikely that adapting these technologies to additional turbines would be introduce new costs substantially different from those associated with their use on turbines where they are commercially available today. Staff therefore believes that the analysis for current commercially available units will also hold true for units that become commercially available in the future.

Full Use Large Gas Turbines: Staff is not proposing any change at this time to the emission standard for turbines with heat input ratings from 150 to 250 MM Btu/hr (~10 to 18 MW), which is currently 15 ppm. Staff considered lowering the standard to 9 ppm or 5 ppm, which would require installation of SCR systems on the turbines in this category that do not currently have such systems. SCR system costs range from $3,000,000 to $4,000,000 per turbine, impact operating capacity and thermal efficiency, and require ammonia and ammonia injection systems and catalysts. Because the NOx reduction that would be obtained from these costly control methods would be so limited, staff is not recommending requiring these upgrades at this time.

Full Use Larger Gas Turbines: For facilities with turbine heat input ratings from 250 to 500 MM Btu/hr. (~18 to 40 MW), staff proposes an emissions standard of 9 ppm. This does not represent a change for turbines equipped with SCR systems, which are already subject to a 9 ppm limit. For facilities without an SCR system, this represents a reduction in NOx limits from 15 ppm to 9 ppm. There are six facilities in this category in the District that do not have an SCR system, but each is already achieving 9 ppm NOx. They will not have to make any further changes to comply. Accordingly, there will be no cost impacts from this proposed amendment.

Staff also considered whether it would be appropriate to lower the standard for these turbines below 9 ppm. Further reductions would require installation of SCR systems, reconfiguration of existing SCR systems, or other similarly effective retrofit work. Retrofit systems range from $3,500,000 to $4,500,000 in capital costs, impact operating capacity and thermal efficiency, and require additional ongoing operation costs for ammonia and ammonia injection systems and catalysts. The incremental NOx reduction benefit from requiring such systems to achieve NOx emissions below 9 ppm is not adequate to justify these large capital and operating costs.

Full Use Largest Gas Turbines: For facilities with turbine heat input ratings greater than 500 MM Btu/hr. (~40 MW plus), the proposed amendments set an emissions standard of 5 ppm. For facilities without an SCR, this represents a reduction in NOx limits from 15 ppm to 5 ppm. For facilities with an existing SCR, this proposal represents a reduction in NOx limits from 9 ppm to 5 ppm. To meet these limits, the existing gas turbines in this size category that are not already below 5 ppm will have to:

- enhance their SCR and ammonia injection system;
- install an SCR system; or
- install state-of-the-art DLN.

The SCR systems and state-of-the-art DLN for these largest turbines cost $4,000,000 to $5,000,000 per turbine in capital costs. SCR systems also impact capacity and thermal efficiency, and have ammonia and catalyst operating costs. (State-of-the-art DLN does not involve significant additional operating costs.) Costs for these upgrades range from $10,000 to $20,000 per ton. These costs are justified by the significant NOx reductions that can be obtained due to the large size of these turbines.

Limited Use Larger and Largest Gas Turbines: For low-usage turbines (less than 877 hours per year), staff is proposing to lower the emission limit for the largest size categories – turbines with heat input ratings from 250 to 500 MM Btu/hr. (~ 18 to 40 MW equivalent) and over 500 MM Btu/hr (greater than ~ 40 MW equivalent) – from 42 ppm to 25 ppm for turbines burning natural gas and from 65 to 42 ppm for turbines burning liquid fuels. Meeting these lower limits will require operators to install enhanced water injection technology. This technology is commonly available, as it has been developed for gas turbines that are in full time operation. These water injection enhancements for limited use turbines in these size categories typically cost $500,000 to $1,000,000 in capital costs, with very little impact on operating costs. These enhancements for the larger and largest turbines operating up to 877 hours cost $10,000 to $20,000 per ton of NOx reduced.

B. Incremental Cost Effectiveness

Section 40920.6 of the California Health and Safety Code requires an air district to perform an incremental cost analysis for any proposed Best Available Retrofit Control Technology rule or feasible measure. The air district must: (1) identify one or more control options achieving the emission reduction objectives for the proposed rule, (2) determine the cost effectiveness for each option, and (3) calculate the incremental cost effectiveness for each option. To determine incremental costs, the air district must "calculate the difference in the dollar costs divided by the difference in the emission

reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option."

Staff identified two categories of retrofit control technology that can achieve the regulation's goal of reducing NOx emissions from gas turbines. The most effective and most expensive category includes SCR systems and state-of-the-art DLN systems, which can achieve less than 5 ppm NOx emissions when retrofit to existing turbines. The second category includes enhanced water injection and steam injection retrofits and ordinary DLN technology, which are not as efficient as SCR systems and state-of-the-art DLN systems, but are also not as expensive. Staff evaluated the respective incremental cost-effectiveness of each of these two categories of control technology for each turbine size range.

For the largest turbines – those with heat input ratings greater than 500 MM Btu/hr. (~40 MW plus) – staff determined that SCR or state-of-the-art DLN technology could achieve emission reductions at a cost of approximately $10,000 to $20,000 per ton of NOx reduced. Staff found that enhanced water injection or steam injection or ordinary DLN technology are not viable options because they are not capable of achieving significant further reductions below the already low limits applicable to these units. Staff therefore concluded that requiring SCR or equivalent technology for these turbines was the only viable control option capable of achieving the objectives of the proposed rule, and that the costs were justified by the NOx reduction benefits to be gained.

For the turbines in the large and larger size category – those with a heat input rating from 150 to 250 MMBtu/hr (~ 10-18 MW) and from 250 to 500 MMBtu/hr (~ 18-40 MW) – the District determined that SCR or state-of-the-art DLN technology could achieve emission reductions at a cost of approximately $22,000 to $48,000 per ton of NOx reduced. These gas turbines already have enhanced water or steam injection, DLN combustion technology, or SCR's installed in order to achieve the existing 15 ppm or 9 ppm NOx emission limits. Staff therefore determined that the costs of requiring SCR or state-of-the-art DLN technology to achieve 5 ppm NOx are not justified by the emissions reductions to be gained. Staff concluded that lowering the existing standards where feasible to capture these turbines' current performance is the best option.

For mid-size turbines – those with a heat input ratings from 50 to 150 MMBtu/hr (~ 3-10 MW) – staff expects the cost of SCR or state-of-the-art DLN technology to be even greater than the $22,000 to $48,000 per ton of NOx reductions found for the next largest category. The costs per ton will be larger because the costs of retrofitting the turbines will not be significantly different, but the amount of emissions reductions to be gained from the smaller turbines would be significantly less. District staff compared these large costs with the costs of water injection or steam injection enhancements or ordinary DLN technology, which are expected to be approximately $5,000 to $19,000 per ton of NOx reduced. Staff concluded that this second option was the most appropriate based on the costs and emission reduction benefits available.

For the smallest turbines – those below 50 MMBtu/hr (~ 3 MW) – no amendments are being proposed and so no incremental cost-effectiveness analysis is required. Based on the analyses for the larger turbines outlined above, however, Staff believe that the costs per ton of emissions reductions would be very large for either type of emissions control technology.

For limited-use turbines (under 877 hours per year), staff determined that the cost of enhanced water injection technology would be $10,000 to $20,000 per ton of NOx reduced for turbines operating between 400 and 877 hours per year. Staff expects the costs of SCR or state-of-the-art DLN technology per ton of NOx reduction will likely be much higher, given the high costs of those technologies and the limited amount of NOx reductions available due to these turbines' limited use. Staff therefore concluded that enhanced water injection is the preferable control option for limited-use turbines, with a qualified exemption for turbines operated less than 400 hours per year because of the very small emissions reductions to be gained from such turbines.

C. Socioeconomic Impacts

Section 40728.5 of the California Health and Safety Code requires an air district to assess the socioeconomic impacts of the adoption, amendment or repeal of a rule if the rule is one that "will significantly affect air quality or emissions limitations." Applied Economic Development of Walnut Creek, California has prepared a socioeconomic analysis of the proposed amendments to Regulation 9, Rule 9. The analysis concludes that the affected facilities should be able to absorb the costs of compliance with the proposed rule without significant economic dislocation or loss of jobs.

VI. ENVIRONMENTAL IMPACTS

Pursuant to the California Environmental Quality Act, the BAAQMD has had an initial study for the proposed amendments prepared by Environmental Audit, Inc. The initial study concludes that there are no potential significant adverse environmental impacts associated with the proposed amendments. A negative declaration is proposed for approval by the BAAQMD Board of Directors. The initial study and negative declaration is to be circulated for public comment during the period from November 6, 2006 to December 6, 2006.

Regulation 9, Rule 9 supports efficiency and energy conservation as a primary preventive approach to pollution. The rule currently adjusts the volumetric NOx emission limits for thermal efficiency of a facility. A more efficient gas turbine will generate more power, consume less fuel, and emit less NOx even though the concentration of the NOx in the flue gas may be slightly higher. The proposed amendments continue and enhance this approach by incorporating "output based" emission limits, as recommended by the EPA. These limits are defined as lbs. of NOx per megawatt-hour of all productive energy, and reinforce the same preventive approach to pollution. Reducing pollution while promoting efficiency is crucial considering the concern regarding CO_2 emissions and their impact on global climate change.

VII. REGULATORY IMPACTS

Section 40727.2 of the Health and Safety Code requires an air district, in adopting, amending, or repealing an air district regulation, to identify existing federal and district air pollution control requirements for the equipment or source type affected by the proposed change in air district rules. The air district must then note any difference between these existing requirements and the requirements imposed by the proposed change.

EPA developed and issued New Source Performance Standards for gas turbines in July of 2006. 40 CFR Part 60 – Standards of Performance for Stationary Combustion Turbines; Final Rule was issued on July 6, 2006. NOx emission limits proposed in Regulation 9, Rule 9 are as stringent as, or more stringent than, those issued by the EPA. The EPA rule affects new and modified sources. For new sources (constructed after February 18, 2005) the requirements of Regulation 9, Rule 9 apply, but BACT requirements would be considerably more stringent in all size categories. Current BACT limits for new natural fired gas turbines greater than 150 MM Btu/hr heat input are from 2 to 2.5 ppm NOx.

Turbine Type	**Fuel Type**	**Turbine Heat Input**	**EPA Requirement**	**9-9 Proposal**
New	Natural Gas	< 50 MM Btu/hr	42 ppm	BACT
New	Natural Gas	50 – 850 MM Btu/hr	25 ppm	BACT
New, modified or reconstructed	Natural Gas	> 850 MM Btu/hr	15 ppm	5 ppm or BACT
New	Other than Natural Gas	< 50 MM Btu/hr	96 ppm	BACT
New	Other than Natural Gas	50 – 850 MM Btu/hr	74 ppm	BACT
New, modified or reconstructed	Other than Natural Gas	> 850 MM Btu/hr	42 ppm	25 ppm or BACT
Modified or reconstructed		< 50 MM Btu/hr	150 ppm	42 – 65 ppm
Modified or reconstructed	Natural Gas	50 – 850 MM Btu/hr	42 ppm	42 ppm
Modified or reconstructed	Other than Natural Gas	50 – 850 MM Btu/hr	96 ppm	50 – 65 ppm

VIII. RULE DEVELOPMENT PROCESS

The 2005 Ozone Strategy identified Control Measure SS-14 as an opportunity to reduce NOx emission in the Bay Area. Staff initiated work on this control measure in January, 2006. Staff developed an inventory of every permitted gas turbine in the District and

contacted each facility in January and February of 2006 to advise them of the 2005 Ozone Strategy, and specifically Control Measure SS 14, identifying the Districts' intent to reduce NOx emissions from gas turbines to the maximum extent feasible. District staff visited seven facilities to understand the range of turbine operations in the Bay Area, and to understand the issues and concerns these facilities may have.

In April, staff published draft rule amendments and provided a workshop report detailing the rationale for these draft amendments. First draft amendments to Regulation 9, Rule 9, and a workshop report were posted on the District Website, e-mailed and mailed to all interested parties on May 2, 2006.

In May, 2006 staff received and responded to more than 20 telephone inquires and more than 20 e-mail inquiries regarding specific topics and issues from the draft rule amendments and workshop report.

The District held a Public Workshop on May 31, 2006 to solicit comments from the public, members of State agencies, industry and environmental organizations, and other interested parties on potential amendments to Regulation 9, Rule 9. Staff received written input from 15 affected facilities and 7 other affected parties during and after the May 31, 2006 workshop.

Very little input was received from facilities that operated less than 877 hours per year, and those that burned liquid fuels. Staff developed an outreach approach to these 17 facilities, by calling each facility and obtaining a point of contact and phone number, and attempting to identify an e-mail address for each contact. This information was used to ensure these affected parties were aware of the amendments being developed for Regulation 9, Rule 9, and to solicit their participation and input.

Input from the first workshop raised concerns about the effective date included in the draft amendments, and the cost effectiveness of the revised emission limits. District staff worked with more than 10 individual facilities to develop technical options, and to begin developing estimates for capital and operating cost impacts from the various retrofit options. District staff met with representatives of two additional facilities to understand their unique issues and concerns. Staff developed a spreadsheet ranked by turbine size containing actual and permitted emission levels, fuels used, and type of control. Each facility developed and provided information for their site specific retrofit control project costs and timing. These project costs were validated with equipment vendors and previous estimates developed by San Joaquin Valley APCD and EPA. Staff worked with each facility to properly assess the economic impacts of the project on operating capacity, thermal efficiency, and downtime required for implementation. Staff then estimated control technology costs for each turbine and calculated the emissions reductions to be obtained. This analysis validated that some of the first draft amendments were not justified for some of the turbine categories.

Upon determining costs for classes of turbines in the rule, staff examined whether some turbines could meet lower emission limits. This analysis lead directly to developing a

second draft of amendments for Regulation 9, Rule 9. EPA had issued 40 CFR Part 60: Standards of Performance for Stationary Combustion Turbines; Final Rule on July 6, 2006. The concept of output based emission limits from the EPA guidance was incorporated into the second draft amendments. A supplement to the workshop report was generated to summarize the differences from the original workshop report. A second workshop notice, second draft amendments and supplemental workshop report were posted on the district website, and e-mailed to all interested parties. The second workshop was held on October 13, 2006.

Input from the second workshop was focused primarily on interpretation of rule language, and a request for a definition of standard turbine heat input. Staff used this input to develop a final draft of the proposed amendments, and published the proposed amendments and this Staff Report for comment on November 6, 2006. The proposed amendments are scheduled for a public hearing by the Board of Directors on December 6, 2006.

The District will continue to follow the development of cost effective gas turbine control technologies, and assess the need for continued NOx reductions during future planning cycles.

IX. CONCLUSIONS

Pursuant to Section 40727 of the California Health and Safety Code, the proposed rule must meet findings of necessity, authority, clarity, consistency, non-duplication, and reference. The proposed amendments to Regulation 9, Rule 9:

- Are necessary to limit emissions of nitrogen oxides, a primary precursor to ground-level ozone formation, and to meet the requirements of the Bay Area 2005 Ozone Strategy;
- Are authorized under Sections 40000, 40001, 40702, and 40725 through 40728 of the California Health and Safety Code;
- Are written or displayed so that its meaning can be easily understood by the persons directly affected by it;
- Are consistent with the other BAAQMD rules, and not in conflict with state or federal law;
- Are not duplicative of other statures, rules or regulations; and
- Are implementing, interpreting and making specific the provisions of the California Health and Safety Code sections 40000 and 40702.

The proposed amendments have met all legal noticing requirements, have been discussed with the regulated community and other interested parties, and reflect the input and comments of many affected and interested parties. BAAQMD staff recommends adoption of proposed amendments to Regulation 9, Rule 9: Nitrogen Oxides from Stationary Gas Turbines.

X. References

Standards of Performance for Stationary Gas Turbines; Final Rule, 71 Fed. Reg. 38482 (July 6, 2006), to be codified at 40 C.F.R. pt. 60, subpt. KKKK

California Air Resource Board, "Electrical Generation Retrofit Regulation Homepage" http://www.arb.ca.gov/energy/retro/retro.htm,

California Air Resource Board, "Gas Turbines" Compliance Assistance Program, June 1996.

California Air Resource Board, "Guidance for Power Plant Siting and Best Available Control Technology", July 22, 1999.

Cost Analysis of NOx Control Alternatives for Stationary Gas Turbines, Onsite Sycom Energy Corporation, November 5, 1999.

Cost Impact of Proposed NSPS for Stationary Combustion Turbines, Alpha-Gamma Technologies, Inc., February 4, 2005

San Joaquin Valley Unified Air Pollution Control District, "Rule 4703 (Stationary Gas Turbines)", Last Amended April 25, 2002.

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Bay Area Air Quality Management District, Regulation 9 – Rule 9, Last Amended September 21, 1994.

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South Coast Air Quality Management District, "Rule 1134 (Emissions of Oxides of Nitrogen from Stationary Gas Turbines)", Last Amended August 8, 1997.

Sacramento Metropolitan Air Quality Management District, "Rule 413 (Stationary Gas Turbines)", Last Amended May 1, 1997.

San Diego Air Pollution Control District, "Rule 69.3.1 (Stationary Gas Turbine Engines - Best Available Retrofit Technology)", Adopted December 16, 1998.

Gas Turbine Emissions and Control, GE Power Systems GER-4211, 03/2001

Bay Area Air Quality Management District, Manual of Procedures, Volume 4, Source Test Procedure ST-13A.

Bay Area Air Quality Management District, Manual of Procedures, Volume 5.

Appendix I
Public Comments and Responses

Written comments were received from Damon Beck of Silicon Valley Power on November 22, 2006. Additional written comments were received from Sue Gustofson of Valero Energy Corporation on November 27, 2006. Additional written comments were received from Dennis Bolt of Western States Petroleum Association (WSPA) on behalf of several Bay Area refinery operators, and Sally Rump of the California Air Resources Board on November 28, 2006. The comments and staff responses follow.

A: Silicon Valley Power

1. Are California Independent System Operator (ISO) Stage Emergencies included in "emergency use"?

I just have one question on the definition of Emergency Use (9-9-204). Does this definition include the Stage I, II and III Emergencies issued by the ISO? There were three ISO Stage emergencies in 2005 and four have occurred to date in 2006. This trend is likely to continue and is one of the emergency situations in which we would operate our Gianera Power Plant. Please consider adding language which includes ISO Stage Emergencies to the definition for Emergency Use.

Response: Emergency use is defined as a natural or civil disaster or emergency situation, as requested or ordered by any federal, state or local agency to protect the public, life or property. The California ISO is not a federal, state or local agency. In addition, the fact that the ISO has designated a power shortage as a stage emergency does not, by itself, mean that there is necessarily a danger to the public, life or property. Circumstances generated by a power emergency could conceivably reach the point where there could be a danger to the public, life or property. If so, and a federal, state or local agency requests or orders a turbine to operate because of the emergency, then the emergency use provisions in the rule would apply.

B: Valero Energy Corporation

1. 9-9-206 Heat Input Rating - Steam Injection for Power Augmentation or NOx Controls

ISO 3977 provides no definition for Nameplate Rating. We agreed that the Nameplate Rating was the information provided by the manufacturer on the nameplate of the gas turbine. I understand the industry standard excludes from the nameplate rating any type of water or steam injection for either NOx controls or power augmentation. Water or steam injection can increase HP output due to additional mass thru the gas turbine and also has an effect on efficiency.

I recommended that 9-9-206 be amended to read:

Turbine **Heat Input Rating:** The heat input requirement (based on fuel HHV) of a gas turbine at its International Standards Organization (ISO) 3977 nameplate rated power output, *excluding add-on control technology* at standard conditions of 1 atmosphere, 15 centigrade, and 60% atmospheric humidity.

Response: Staff agrees that any interpretation of the definition of Heat Input Rating should be made within normal industry standards. Design heat input for the gas turbine's design power output may or may not include water or steam injection for NOx control, depending on when the turbines was designed and manufactured. If records are not adequate to clearly identify Heat Input Rating, calculations should be made to determine heat input requirements assuming no water or steam injection, and no steam power augmentation.

A second aspect of the comment was to add the word "Turbine" into the definition for Heat Input Rating. Review of the use of Heat Input Rating in the regulation finds no ambiguity in its use, since the definition clearly applies to turbines in each case. No clarification is required.

2. 9-9-206 Heat Input Rating - ISO Standards for Older GT's

The ISO Standard 3977-2 (Gas Turbines - Procurement) was written in 1997. Older gas turbine nameplate ratings were generally based on site conditions, rather than ISO standard conditions of 1 atmosphere, 15 Celsius, and 60% relative humidity. Technical data provided by the manufacturers of older gas turbines may have included graphs or other data that provided rough conversions to different ambient conditions. However, not all conversions were provided or available by the manufacturer. I questioned how to demonstrate ISO standards with older GT's that may not have been provided with all conversions to what are now ISO standards.

In particular, I suggested the assumption of 60% relative humidity where none was provided. You commented that an 'assumption' would not be appropriate to be stated in an Air District Standard. You also recommended that Valero provide written comment describing this issue and that you would then provide comment in the appendix of the Staff Report. From that information, we would work with the Permit Engineer on an agreement for relative humidity assumptions for specific GT's as it relates to Manufacturer's Nameplate Design Output HP and Design Heat Rate.

I restate that an assumed 60% relative humidity is appropriate for the Bay Area if none is stated with the manufacturer's data. Since no conversion of relative humidity is provided by the manufacturer, it is assumed that this has a very insignificant effect on overall heat input or HP output compared to temperature or local atmospheric pressure. Average annual daytime San Francisco relative humidity per NOAA is 62%. Since gas turbines were generally specified per site conditions, the 60% Relative Humidity value seems reasonable.

Response: Section 9-9-206 as proposed requires heat input rating to be calculated assuming 60% relative humidity. The definition is consistent with this comment.

C: Western States Petroleum Association (WSPA)

1. 9-9-301.3 and 302.3 - NOx limits when burning mixtures of fuels

WSPA requests you amend or clarify the following issues in the proposed rule, either with non-substantive amendments or comments in the staff report.

- **Sections 301.3 and 302.3 –** When NOx controls are configured to serve both a duct burner utilizing refinery fuel gas AND an SGT burning natural gas, the limit prescribed in Sections 302.1 and 302.3 are infeasible. For instance, an SCR cannot achieve serving both a duct burner burning refinery fuel gas and a SGT burning natural gas cannot achieve the natural gas limit.

  The duct contributes to the stack emissions as well as the SGT. The BAAQMD commented at the workshop that an operator could use a CEMS to monitor NOx downstream of the SGT but upstream of the duct burner to demonstrate compliance of the SGT without the duct burner NOx contribution. A problem with this proposal is that many SGT's comply with the NOx emission limit using a selective catalytic reforming (SCR) unit located downstream of the SGT and the duct burner. A NOx CEMS downstream of the SGT but upstream of the duct burner could not demonstrate compliance with the limit because this would precede the SCR used to abate SGT & duct burners NOx emissions.

  We recommend Sections 301.3 and 302.3 are modified to read:

"If a turbines burns a mixture of fuels, <u>or if the controls on an existing turbine also serve another source using other than natural gas,</u> the turbine's NOx emission limits shall be the highest of the limits applicable to any of the fuels in the mixture."

Response: Only one refinery in the Bay Area burns natural gas in their gas turbines, and refinery process gas in their duct burners. This refinery conducted test runs to determine the capacity of their Selective Catalytic Reduction (SCR) catalyst ability to reduce NOx emissions below 5 ppm. Their test run included wide variation in duct burner firing, and all NOx emission readings were below 3 ppm. Further, we understand that these are the original charges of catalyst in these SCR's (~14 year life to date). This concern appears to be moot, since this facility is capable of achieving the 5 ppm NOx emissions limit.

2. 9-9-110, 206, 501 – Add the word "Turbine" to Heat Input Rating

WSPA requests you amend or clarify the following issues in the proposed rule, either with non-substantive amendments or comments in the staff report.

- Please modify **Sections 9-9-110, 206, 501** from <u>Heat Input Rating</u> to <u>*Turbine* Heat Input Rating</u> to correspond to the same Turbine Heat Input Rating referenced in 9-9-301.2. Also clarify which part of ISO 3977 this provision refers, as it is a substantive document.

Response: Review of the use of Heat Input Rating in the regulation finds no ambiguity in its use, since the definition clearly applies to turbines in each case. No clarification is required.

3. 9-9-115 – Definition of Minor Inspection and Maintenance Work

WSPA requests you amend or clarify the following issues in the proposed rule, either with non-substantive amendments or comments in the staff report.

- **Section 9-9-115 –** Please clarify what is intended by "Minor Inspection and Maintenance Work". We propose that, at a minimum, testing, inspection, and

maintenance of the unit while operational (i.e., when the unit is operating at times other than start-up & shutdown) be included in this exemption.

Response: Section 9-9-115 provides an exemption for minor inspection and maintenance work. This comment appears to request clarification that the exemption also covers testing. Many industrial inspection and maintenance procedures include equipment testing as a part of a complete inspection to assess the condition of equipment, and staff intends that such testing should be considered exempt. However, the word "testing" could also be interpreted as emissions testing. Staff do not intend that emissions testing would be exempt from the rule. The comment also appears to request clarification that the exemption apply to work that is conducted while a unit is operational. If a unit is not operational it will have no emissions and will not be subject to the rule in the first place.

4. 9-9-404 – Compliance Schedule for Future Commercial Availability of Retrofit Technology

More substantive is the policy/statutory question as to whether **Section 404** is appropriate approach to rule making. WSPA believes this section to be "Underground Rulemaking" by delegating authority to staff to determine that some future technology not yet understood can be mandated without a regulatory process. It is on these policy grounds that WSPA opposes adoption of these amendments.

- BAAQMD has not performed a socio-economic impact, as required by law, on the cost and impacts of this section because it is unknown and unknowable as to what future costs and emission reductions some future technology might require.

- BAAQMD has not, because it cannot, conduct a proper CEQA analysis on potential construction projects and adverse environmental impacts of some yet undetermined retrofit technology. It is not known, or knowable, whether such technology can be added to existing equipments on existing "footprints". The subjective process in Section 404.2 CANNOT replace the rulemaking responsibility of the Board of Directors.

Response: This section does not require the installation of "some future technology not yet understood". It specifically requires installation of existing, known retrofit technology (Dry-Low NOx combustors or enhanced water or steam injection) if and when this technology is designed for specific makes and models of existing gas turbines that do not yet have it available. These technologies are clearly defined, their costs are understood, emissions reduction impacts are known, and environmental and economic impacts have been evaluated within the proposed amendments. Section 404 states that the retrofit technology must be "commercially available" as defined in Section 201. It must be demonstrated at three or more sites, achieve the required control performance utilizing similar fuel for a regular or full-scale operation in the US and be guaranteed by the vendor to meet the emission control performance requirements, among other criteria. In addition, should the operator disagree that the technology meets this criteria, the amendments contain an appeal process.

5. Proposed NOx reductions may only benefit neighboring districts

The current Regulation 9-9 has resulted in a substantial mitigation of NOx emissions at Bay Area petroleum refineries, and presumably other permitted sources. While verifiable emission reductions have been achieved, the controls refineries were required to install were very expensive. The stated intent of adopting more stringent standards for Regulation 9 Rule 9 is to benefit downwind districts that are "NOx limited," meaning that reductions in NOx emissions are necessary to reduce ozone formation.

The total emissions from the draft regulation are less than one ton-per-day (1 tpd). We believe BAAQMD should model the specific benefit to downwind districts prior to imposing these new costs and monitoring requirements on Bay Area business. In addition, BAAQMD should speak to the potential increase in ozone formation by reducing the POSITIVE impact of NOx emissions through its scavenging effect on ozone. It is entirely possible that this rule, and similar rules, will have a more detrimental impact on Bay Area air quality than the benefits it is intended to bring to downwind communities.

Response: These NOx reductions are needed to improve the air quality in the Bay Area including reducing secondary particulate formation, as well to as mitigate transport to neighboring districts. The District is required by State law to adopt all feasible measures to reduce ozone precursors (volatile organic compounds and oxides of nitrogen) and to require the use of Best Available Retrofit Control Technology to stationary sources in the Bay Area. The District is not required to perform modeling studies to quantify the impact of these reductions in the Bay Area or in neighboring districts. The attached CEQA analysis reviewed the potential for detrimental effects on Bay Area air quality due to NOx decreases, and found there could be no significant negative impact.

D: California Air Resources Board

1. No Comment Letter

The Air Resources Board Staff has reviewed this rule, and, based on the information available to us at this time, we have no comments. The rule was examined by the Stationary Source Division.

Response: Noted.

SOCIOECONOMIC
ANALYSIS
PROPOSED RULE

REGULATION 9, RULE 9:
NITROGEN OXIDES
FROM STATIONARY GAS TURBINES

November 2006

Prepared for

Bay Area Air Quality
Management District

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CONTENTS

1. EXECUTIVE SUMMARY

INTRODUCTION

This report describes the socioeconomic impacts of proposed amendments to Regulation 9, Rule 9 that, if implemented, will help the Bay Area Air Quality Management District (District) to achieve and maintain state ambient air quality standards for ozone. Following this summary, the report summarizes the proposed rule requirements and describes the methodology for the socioeconomic analysis. The report also describes the economic characteristics of sites affected by the proposed rule amendments along with the socioeconomic impacts of the proposed amendments.

SUMMARY

The proposed rule amendments affect Bay Area businesses engaged in petroleum refining and electric power generation, transmission and distribution (utilities). Two oil refineries and three utilities will be impacted by the proposed rule amendments. Combined, the five impacted businesses generate sales of approximately $2.8 billion annually. Profits for these businesses are estimated at nearly $96.9 million.

The compliance with the proposed amendments is expected to cost a total of $2.18 million per year. This represents just over one percent of total profits for the impacted businesses. Additionally, slightly more than 96 percent of the total compliance cost will be borne by four (three plus a subsidiary) of the five impacted businesses.

The analysis concludes that the costs associated with compliance will not result in significant economic dislocation or job losses. The total annual cost of compliance is far below the 10 percent of profits threshold for significant impact. Additionally, small businesses will not be disproportionately impacted by the proposed amendments.

2. DESCRIPTION OF THE PROPOSED RULE

CURRENT STATUS OF THE RULE

In 1992, the California Air Resources Board developed a guidance document to aid local air districts in adopting regulations governing NOx emissions. This document was titled *Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for the Control of Oxides of Nitrogen from Stationary Gas Turbines* (RACT/BARCT). On May 5, 1993, using the RACT/BARCT document as a guideline, BAAQMD adopted Regulation 9, Rule 9 to govern NOx emissions from stationary gas turbines in the Bay Area. On September 21, 1994, the rule was amended to accommodate a delay in development of Dry Low NOx (DLN) combustion technology.

Regulation 9, Rule 9 currently sets the following emissions limits based upon MW output and the number of hours the turbine is in operation annually. For turbines that operate 877 hours per year or more, the current NOx emissions limits are as follows:

TURBINE SIZE		FUEL Natural Gas	FUEL Refinery Gas	FUEL Liquid Fuel
Less than 0.3 MW		Exempt	Exempt	Exempt
0.3 MW to 10 MW		42	55	65
10 MW or more	Without SCR	15	15	42
	With SCR	9	9	25

For those turbines that operate less than 877 hours per year, the current NOx emissions limits are as follows:

TURBINE SIZE	FUEL Natural Gas	FUEL Refinery Gas	FUEL Liquid Fuel
Less than 4 MW	Exempt	Exempt	Exempt
4 MW to 10 MW	42	N/A	65
10 MW or more	42	N/A	65

As currently adopted, the rule provides for the following exemptions to the emissions limits listed above:

- Testing of aircraft gas turbine engines for flight certification
- Gas Turbines used exclusively for fire fighting and/or flood control
- Laboratory turbines used exclusively in turbine technology research
- Small turbines under 0.3 MW (or under 4.0 MW for backup/standby turbines used less than 877 hours per year)
- Emission limits do not apply during startup, shutdown, or inspection and maintenance periods.

All gas turbines subject to the regulation were required to be in compliance with all applicable standards by January 1, 1997. Since the adoption of Regulation 9, Rule 9, improvements have been made in Dry Low NOx (DLN) combustion technology as well as improvements in Selective Catalytic Reduction (SCR) catalysts that can achieve lower NOx emissions than currently required by this rule.

PROPOSED RULE AMENDMENTS

With consideration to comments the District has received regarding potential amendments the Regulation 9, Rule 9, the following amendments are proposed;

- Provide an operating window for turbines of up to 400 hours per year for testing and minor production before any new emission limits are required.
- Require SCR or an equivalent retrofit for gas turbines that are greater than 40 MW.
- Categorize emission limits by heat input (turbine heat input rating) rather than MW output.[1]
- Provide the option of lbs NOx/MW-hr "output based" emission limits.
- Include the heating value of steam or direct drive mechanical work in the total useful work component of the MW-hr calculation.
- Determine compliance based on three hour averaging.
- Make minor clarifying changes to the rule, such as addition of definitions and deletion of obsolete references.
- Provide an implementation timetable of 18 months for design and application for an Authority to Construct, and 18 months for construction and startup, or at the next scheduled turnaround, whichever is later, but not later than January 1, 2012.

EMISSIONS REDUCTIONS

BAAQMD estimates that proposed reduced emissions limits, ad detailed in Appendix A to this report, will lower NOx emissions by 0.43 tons per day; which combined with recent turbine shutdowns is a reduction of approximately 241 tons per year.

[1] Appendix A to this report details the NOx emissions limits proposed with these amendments.

3. IMPACT OF PROPOSED RULE AMENDMENTS

This section of the socioeconomic analysis describes demographic and economic trends in the San Francisco Bay Area (Bay Area) region. Following an overview of the methodology for the socioeconomic analysis, the first part of this section compares the Bay Area against California and provides a context for understanding demographic and economic changes that have occurred within the Bay Area between 1995 and 2005. After an overview of Bay Area industries, we focus on the following industries:

- NAICS 32411, Petroleum Refineries
- NAICS 2211, Electric Power Generation, Transmission, and Distribution

Then the impacts on businesses within these industries of the proposed changes to Regulation 9, Rule 9 concerning nitrogen oxides from stationary gas turbines are analyzed. For the purposes of this report, the Bay Area region is defined as Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties.

METHODOLOGY

The socioeconomic analysis of the proposed rule amendments concerning nitrogen oxides from stationary gas turbines involves the use of information provided directly by BAAQMD, as well as secondary data used to describe the industries affected by the proposed rule amendments.

Based on information provided by BAAQMD staff, ADE determined that the impacts would affect oil refineries and companies engaged in electric power generation, transmission, and distribution (utilities). In relation to the refineries, we further focused attention on Chevron and Valero refineries, as well as Calpine, OLS Energy-Agnews

which is a subsidiary of Calpine, and International Power Technology[2].

With this information we began to prepare economic descriptions of the industry groups of which the impacted sites are a part, as well as to analyze data on the number of jobs, sales levels, the typical profit ratios and other economic indicators for the Bay Area businesses. ADE also reviewed and summarized documents available to the public such as annual reports for publicly traded companies.

With the annual reports and data from the US Economic Census, ADE was able to estimate revenues and profit ratios for many of the sites impacted by the proposed rule amendments. In calculating aggregate revenues generated by Bay Area refineries and utilities, ADE first estimated annual revenue based upon available data. Using annual reports and publicly available data, ADE calculated ratios of profit per dollar of sales for the businesses on which the analysis focused. To estimate employment, ADE used employment data from 2002 Economic Census, the California Employment Development Department, and Dun & Bradstreet.

The result of the socioeconomic analysis shows what proportion of profit the compliance costs represent. Based on a given threshold of significance, ADE discusses in the report whether the affected sites are likely to reduce jobs as a means of recouping the cost of compliance or as a result of reducing business operations. To the extent that such job losses appear likely, the indirect multiplier effects of the job losses area estimated using a regional IMPLAN input-output model.

REGIONAL DEMOGRAPHIC TRENDS

The Bay Area experienced moderate population growth from 1995 to 2005. Between 1995 and 2000, the nine-county region increased by nearly 6.7 percent, from 6.3 million in

[2] International Power Technology is a private sector organization that offers power plant operations, maintenance, and management services.

1995 to almost 6.8 million in 2000. From 1995 to 2005, the population increase was from 6.3 million to close to 7.1 million for an increase of approximately 10.4 percent. At the same time, California had population growth of almost 14 percent.

Within the Bay Area, the greatest percentage increase occurred in Contra Costa County. From 1995 to 2005 Contra Costa increased its population by nearly 15 percent. All other Bay Area counties had population increases slower than the State. The smallest percentage increase occurred in Marin County where population grew less than 5.5 percent from 1995 to 2005. Table 1 shows the population changes that have occurred in the Bay Area and California from 1995 to 2005.

Table 1
Population Growth: San Francisco Bay Area

	Population			Percent Change		
	1995	2000	2005	95-00	00-05	95-00
California	31,617,000	33,871,648	36,728,196	6.7%	7.8%	13.9%
Bay Area	6,329,800	6,783,760	7,067,403	6.7%	4.0%	10.4%
Alameda County	1,332,900	1,443,741	1,500,228	7.7%	3.8%	11.2%
Contra Costa County	869,200	948,816	1,019,101	8.4%	6.9%	14.7%
Marin County	238,100	247,289	251,820	3.7%	1.8%	5.4%
Napa County	116,800	124,279	132,990	6.0%	6.6%	12.2%
San Francisco County	741,600	776,733	792,952	4.5%	2.0%	6.5%
San Mateo County	673,300	707,161	719,655	4.8%	1.7%	6.4%
Santa Clara County	1,568,200	1,682,585	1,752,653	6.8%	4.0%	10.5%
Solano County	368,000	394,542	420,307	6.7%	6.1%	12.4%
Sonoma County	421,700	458,614	477,697	8.0%	4.0%	11.7%

Source: Applied Development Economics, based on household population estimates from The California Department of Finance

REGIONAL ECONOMIC TRENDS

The Bay Area is one of the world's greatest regional economies. It benefits from pre-eminent knowledge-based industries, with competitive strength flowing from an unmatched culture of entrepreneurship, world-leading research institutions, and some of the nation's best educated and most highly skilled workforce. With these remarkable advantages, it has led through innovation in a wide range of research and industrial fields.

Many of the Bay Area's most prominent industries are manufacturing related. From Intel to PowerBar, Bay Area manufacturers are often high profile companies with world-renowned recognition. From small to large, Bay Area industry has been dynamic, creating wealth and jobs in both the export sector and local serving industries.

The economic base is typically comprised of export industries within the manufacturing, minerals-resource extraction, and agricultural sectors. There are also the "local support industries" such as retail or service sectors, the progress of which is a function of the economic base and demographic changes, and more so the latter than the former. As population increases in a given area, demand for services – such as realtors, teachers, healthcare – increases, as does demand for basic retail items like groceries, gas for commuting, or clothing at the local apparel shops.

The industries affected by the proposed rule amendments are a prominent part of the region's economic base. The oil refineries are classified as manufacturers with the firms engaged in chemical manufacturing. In the Bay Area, manufacturing jobs have decreased over the last decade. In 1995, manufacturing accounted for 14.5 percent of all Bay Area employment. By 2005, manufacturing declined 3.5 percentage points to account for 11 percent of all Bay Area employment.

As of 2005, the professional and business services sector was the largest employer in the region, at 529,100 jobs or 17 percent of all private and public sector jobs. This is a change from 1995 when professional and business services accounted for 16 percent of all Bay Area employment. During the same period, professional and business services increased 14 percent. The next largest industry in the Bay Area is public service, or government, with 468,100 jobs. In 2005, government accounted for 15 percent of all Bay Area employment. From 1995 to 2005, government had one of the lowest growth rates of all industries at less than 6 percent. Two other industries came close to manufacturing in total employment. Retail trade and education & health care both made up 11 percent of total employment and had only a few thousand jobs less than manufacturing. Unlike

manufacturing, both retail trade and education & health care had significant job gains from 1995 to 2005. All other industries made up less than manufacturing in total employment in 2005. Table 2 shows Bay Area industry sectors and their trends from 1995 to 2005.

Table 2
Employment Profile of the San Francisco Bay Area, 1995-2005

Industry	1995	2000	2005	% of Total Employment in 2005	% Change 1995 - 2000	% Change 2000 - 2005
Farm	21,100	25,800	20,000	1%	22%	-22%
Natural Resources & Mining	2,920	4,600	4,560	0%	58%	-1%
Construction	105,200	165,700	164,100	5%	58%	-1%
Manufacturing	428,800	484,500	351,300	11%	13%	-27%
Wholesale Trade	121,700	138,800	122,900	4%	14%	-11%
Retail Trade	304,900	350,600	336,600	11%	15%	-4%
Transportation, Warehousing and Utilities	116,600	125,600	100,400	3%	8%	-20%
Information	92,100	151,600	112,300	4%	65%	-26%
Financial Activities	189,300	198,500	213,000	7%	5%	7%
Professional and Business Services	464,400	670,300	529,100	17%	44%	-21%
Educational and Health Services	299,300	334,300	361,600	11%	12%	8%
Leisure and Hospitality	260,400	297,700	311,000	10%	14%	4%
Other Services	100,700	110,800	109,900	3%	10%	-1%
Government	442,100	465,200	468,100	15%	5%	1%
Total	2,949,520	3,524,000	3,204,860	100%	19%	-9%

Source: Applied Development Economics from data supplied by the Labor Market Information Division of the California Employment Development Department

DESCRIPTION OF AFFECTED INDUSTRIES

The proposed amendments to Regulation 9, Rule 9 affect industries in the following NAICS codes:

- NAICS 32411, Petroleum Refineries
- NAICS 2211, Electric power generation, transmission and distribution

What follows is a description of these industries, along with their economic trends in the Bay Area, and it provides a comparison between 2001 and 2005. Data in Table 3 below are for all sources, not just the major sites that have been focused on in the Bay Area. As shown in Table 3, employment in petroleum refineries decreased by 6 percent over the four-year period from 2001 to 2005. Though employment in this industry decreased during this period, it fared much better than the overall manufacturing sector.

Between 2001 and 2005, Bay Area manufacturing lost almost 110,000 jobs, a 24 percent decline. In California, petroleum refinery jobs declined by 7 percent during the same period and manufacturing jobs declined 16 percent. In short, while employment in Bay Area refineries decreased in a fashion similar to what happened in refineries in the state as a whole, refinery employment decline was not as drastic as regional and statewide employment declines for the manufacturing sector as a whole.

Table 3
Employment Trends: Industries Affected by Proposed Amendments, 2001 - 2005

	2001	2005	Change from 2001 to 2005	% Change from 2001 to 2005
San Francisco Bay Area				
MANUFACTURING	460,992	351,005	(109,987)	-24%
Petroleum Refineries	6,424	6,031	(393)	-6%
TRADE, TRANSPORTATION, & UTILITIES	559,947	608,519	48,572	9%
Electric Power Generation, Transmission and Distribution	3,007	2,771	(236)	-8%
California				
MANUFACTURING	1,780,544	1,498,373	(282,171)	-16%
Petroleum Refineries	13,447	12,498	(949)	-7%
TRADE, TRANSPORTATION, & UTILITIES	2,719,610	2,792,887	73,277	3%
Electric Power Generation, Transmission and Distribution	54,800	55,800	1,000	2%

Source: California Employment Development Department, Quarterly Census of Employment and Wages, Minnesota IMPLAN Group; calculations by Applied Development Economics.

As shown in Table 3 above, employment in electric, power, generation, transmission and distribution (NAICS 2211) in the Bay Area decreased by 8 percent in the four-year period from 2001 to 2005. This industry did not fare as well as overall economic sector that NAICS 2211 is a part of, i.e. trade, transportation and utilities. Between 2001 and 2005, the trade, transportation and utilities sector increased by 48,572 jobs in the Bay Area, a 9 percent increase. In California, this sector increased by 3 percent during the same period. Moreover, at the state level, NAICS 2211 increased

somewhat by 2 percent in the four-year period from 2001 to 2005.

Table 4 identifies the economic characteristics of the specific sites affected by the proposed amendments to Regulation 9, Rule 9. This table shows that the affected refineries and electric, power, generation, transmission and distribution sites employ an estimated 880 workers. These five sites have an estimated aggregate payroll of $96.9 million, and estimated revenues of $2.8 billion. In calculating aggregate revenues generated by impacted businesses, the consultant utilized corporate annual reports for three impacted businesses (Calpine, Chevron and Valero). The consultant also used the 2002 Economic Census to estimate an average revenue figure per business that was then applied to two other businesses impacted by the proposed amendments. Then, the consultant summed the businesses' estimated revenue to arrive at the aggregate amount of $2.85 billion.

Table 4
Economic Characteristics of Impacted Businesses in the San Francisco Bay Area

	No. of Businesses	Estimated Sales	Estimated Employment	Estimated Payroll
Petroleum Refineries and Utilities	5	$2,809,938,162	880	$96,860,123

Source: U.S. Economic Census 2002; California Employment Development Department Quarterly Census of Employment and Wages; SEC 10-K filings; Calculations by Applied Development Economics

Note: This includes International Power Technology, which provides operations, maintenance and management of power plants.

As Table 5 shows, the impacted sites represent 10 percent of all employment within their respective industry in the Bay Area. Overall, there are an estimated 8,802 employees in the Bay Area refineries (NAICS 32411) and electric power generation, distribution and transmission plants (NAICS 2211). Of the 8,802 workers, 880 work in the impacted sites, or 10 percent. In California as a whole, there are 68,298 workers in NAICS 32411 and NAICS 2211, meaning that the affected Bay Area sites equal 1.4 percent of 68,298 workers.

Table 5
Employment at Impacted Sites Relative to Bay Area and California

	No. of Businesses	Estimated Employment	Impacted Sites as a % of Bay Area Total	Impacted Sites as a % of California Total
Petroleum Refineries and Utilities	5	880	10%	1%

Source: U.S. Economic Census 2002; California Employment Development Department Quarterly Census of Employment and Wages; SEC 10-K filings; Calculations by Applied Development Economics

Note: This includes International Power Technology, which provides operations, maintenance and management of power plants.

COMPLIANCE COSTS

Table 6 breaks down the estimated cost to comply with the proposed nitrogen oxides from stationary gas turbines rule amendments. This estimate is based upon conversations with the impacted businesses and vendor pricing information for products the materials necessary to implement the planned compliance actions. The total compliance cost is estimated at approximately $2.2 million. The planned compliance actions range from installation of SCR or state of the art DLN technology to enhanced injection of water, steam, or ammonia. In terms of share of compliance cost, BAAQMD staff estimates that approximately 96 percent ($2,087,282) of the total compliance cost will be borne collectively by Calpine[3], Chevron, and Valero. The estimates in Table 6 above represent the aggregate costs for each of the five impacted businesses.

[3] Including its subsidiary, OLS Enerty-Agnews

Table 6
Cost of Compliance

Capital Cost Recovery	$ 1,129,765
Operating Costs	$ 714,150
Lost Capacity	$ 0
Lost Efficiency	$ 0
Ammonia & Util	$ 92,817
Cat Costs	$ 243,500
Total Annual Cost	**$2,180,233**

Source: BAAQMD

This rule also has a provision to require additional retrofits if the technologies become commercially available for different makes and models of gas turbines. It is unlikely that adapting these technologies to additional turbines would introduce new costs substantially different from those today. Analysis for current unit will hold true for these future installations.

BUSINESS RESPONSE TO COMPLIANCE COSTS

Sites impacted by the proposed gas turbine rule amendments may respond in a variety of ways when faced with new regulatory costs. These responses may range from simply absorbing the costs and accepting a lower rate of return to shutting down the business operation all together. Businesses may also seek to pass the costs on to their customers in the form of higher prices, although, at least in the oil industry, prices are set in global markets and individual producers or refineries are not in a position to affect prices. In the utilities industry, prices are subject to a regulatory structure and/or contracts, so it can be difficult to pass along costs. More likely, they may renew efforts to increase productivity and reduce costs elsewhere in their operation in order to recoup the regulatory costs and maintain profit levels.

IMPACT ANALYSIS

The businesses' responses to increased compliance costs hinge on the effect of the costs on the profits generated at the

affected sites. An impact on estimated profits greater than 10 percent implies that the source would experience serious economic effects because of the compliance cost. When compliance costs are greater than 10 percent of estimated profits, companies typically respond to the impact by laying off some workers, closing parts of manufacturing facilities or, in the most drastic case, possibly closing the manufacturing facility.

Using the compliance cost estimates developed for the proposed nitrogen oxides from stationery gas turbines rule amendments ADE calculated the socioeconomic impacts of the proposed actions. In calculating impacts on profits, ADE used return on sales ratios identified by media reports and in annual reports of companies directly affected by the proposal. Based on this information, we estimate that the impacted businesses generated a combined profit of $161.42 million on $2.9 billion in revenues.

Table 7 details the projected impacts of compliance with the proposed NOx reductions on affected site profits. Due to the relatively low number of impacted businesses within each of the impacted industries, the refineries and utilities have been aggregated for the purposes of this table. The estimated annual compliance cost of $2,180,233 represents just over one percent of profits for the impacted businesses in each of the impacted industries, well below the 10 percent threshold for a significant impact.

Table 7
Impact of Estimated Compliance Cost on Estimated Profits at Bay Area Businesses

	No. of Businesses	Estimated Profits	Annual Compliance Cost	Cost as % of Profits
Petroleum Refineries and Utilities	5	$ 161,416,439	$ 2,180,233	1.35%

Source: U.S. Economic Census 2002; California Employment Development Department Quarterly Census of Employment and Wages; SEC 10-K filings; Calculations by Applied Development Economics

Note: This includes International Power Technology, which provides operations, maintenance and management of power plants.

IMPACT ON SMALL BUSINESS

DEFINITION OF SMALL BUSINESS PER CALIFORNIA STATUTE

For purposes of qualifying small businesses for bid preferences on state contracts and other benefits, the State of California defines small businesses in the following manner:

- Must be independently owned and operated;
- Cannot be dominant in its field of operation;
- Must have its principal office located in California
- Must have its owners (or officers in the case of a corporation) domiciled in California; and,
- Together with its affiliates, be either:
    - A business with 100 or fewer employees, and an average gross receipts of $10 million or less over the previous tax years, or
    - A manufacturer with 100 or fewer employees

SMALL BUSINESS IMPACT ANALYSIS

Based upon close inspection of the five impacted sources and their anticipated annual compliance cost, we do not believe that small businesses are disproportionately impacted by the proposed rule amendments. Two of the businesses are oil refineries, which, as documented in previous reports, are not small businesses. These two affected sources are not independently-owned and operated businesses. These refineries are publicly-traded global corporations that employ more than 100 workers and generate over $1 billion in annual sales. Calpine is another publicly-traded business that is impacted by the proposed amendments to Regulation 9, Rule 9. Calpine is in NAICS 2211. Although this company is in receivership, this company and its various subsidiaries (including OLS Energy-Agnews) continue to generate over $1 billion in revenues. Combined, these three businesses, will bear slightly over 96 percent of the total compliance cost

associated with the proposed amendments to Regulation 9, Rule 9. The remaining affected site will incur costs that amount to approximately four percent of the total annual compliance cost, or $92,951 out of $2,180,233. Since the average wage (including benefits) of workers at this site is approximately $97,800, the annual compliance cost amounts to 0.95 full-time equivalent (FTE) positions, if the annual compliance cost is mitigated by reduction in the workforce. In all likelihood, the site can mitigate the loss of 0.95 FTE through normal workforce attrition, improved worker productivity, or a combination of administrative overhead reductions and increases in fee-for-service to the extent market forces allow. Thus, the proposed amendments to Regulation 9, Rule 9 do not disproportionately impact small businesses.

APPENDIX A: PROPOSED EMISSION LIMITS

STATIONARY GAS TURBINES OPERATING 877 HOURS PER YEAR OR MORE

TURBINE HEAT RATE	FUEL		
	Natural Gas	Refinery Gas/Landfill Gas/LPG	Liquid Fuel
< 5MM Btu/hour	Exempt	Exempt	Exempt
5 – 50 MM Btu/hour (0.3 – 3 MW)	2.12 lbs/MW hr or 42 ppm	2.53 lbs/MW hr or 50 ppm	3.28 lbs/MW hr or 65 ppm
> 50 – 150 MM Btu/hour (3 – 10 MW) • **WI/SI enhancement available** • **Where DLN technology available**	1.97 lbs/MW hr or 42 ppm 1.65 lbs/MW hr or 35 ppm 1.17 lbs/MW hr or 25 ppm	2.34 lbs/MW hr or 50 ppm	3.04 lbs/MW hour or 65 ppm
> 150 – 250 MM Btu/hour (10 – 19 MW)	0.70 lbs/MW hr or 15 ppm	0.70 lbs/MW hr or 15 ppm	1.97 lbs/MW hr or 42 ppm
> 250 – 500 MM Btu/hour (19 – 40 MW)	0.43 lbs/MW hr or 9 ppm	0.43 lbs/MW hr or 9 ppm	1.17 lbs/MW hr or 25 ppm
>500 MM Btu/hour (40+ MW)	0.15 lbs/MW hr or 5 ppm	0.26 lbs/MW hr or 9 ppm	0.72 lbs/MW hr or 25 ppm

Note: Shaded limits are those proposed to be changed.

STATIONARY GAS TURBINES OPERATING LESS THAN 877 HOURS PER YEAR

TURBINE HEAT RATE	FUEL		
	Natural Gas	**Refinery Gas/Landfill Gas/LPG**	**Liquid Fuel**
< 50 MM Btu/hr	Exempt	Exempt	Exempt
50 – 150 MM Btu/hr (3 – 10 MW)	1.97 lbs/MW hr or 42 ppm	N/A	3.04 lbs/MW hr or 65 ppm
> 150 – 250 MM Btu/hr (10 – 19 MW)	1.97 lbs/MW hr or 42 ppm	N/A	3.04 lbs/MW hr or 65 ppm
> 250 – 500 MM Btu/hr (19 – 40 MW)	1.17 lbs/MW hr or 25 ppm	N/A	1.97 lbs/MW hr or 42 ppm
> 500 MM Btu/hr (40+ MW)	0.72 lbs/MW hr or 25 ppm	N/A	1.21 lbs/MW hr or 42 ppm

Note: Shaded limits are those proposed to be changed.

Initial Study/Negative Declaration for the Amendments to Bay Area Air Quality Management District Regulation 9, Rule 9: Nitrogen Oxides from Stationary Gas Turbines

Prepared for:

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Prepared By:

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October 2006

Chapter 1

Chapter 2

Chapter 3

FIGURES:

TABLES:

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Chapter 1

Introduction

Purpose of this Document

This Initial Study/Negative Declaration (IS/ND) assesses the environmental impacts of the proposed adoption of amendments to Regulation 9, Rule 9, by the Bay Area Air Quality Management District (BAAQMD or District). This assessment is required by the California Environmental Quality Act (CEQA) and in compliance with the state CEQA Guidelines (Title 14 California Code of Regulations §1400 et seq.). An IS/ND serves as an informational document to be used in the decision-making process for a public agency that intends to carry out a project; it does not recommend approval or denial of the project analyzed in the document. The BAAQMD is the lead agency under CEQA and must consider the impacts of the proposed rule amendments when determining whether to adopt them. The BAAQMD has prepared this IS/ND because no significant adverse impacts would result from the proposed rule amendments.

Scope of this Document

This document evaluates the potential impacts of the proposed amendments on the following resource areas:

- aesthetics,
- agricultural resources,
- air quality,
- biological resources,
- cultural resources,
- geology and soils,
- hazards and hazardous materials
- hydrology and water quality,
- land use planning,
- mineral resources,
- noise,

- population and housing,
- public services,
- recreation,
- transportation and traffic, and
- utilities and service systems.

Impact Terminology

The following terminology is used in this IS/ND to describe the levels of significance of impacts that would result from the proposed rule amendments:

- An impact is considered *beneficial* when the analysis concludes that the project would have a positive effect on a particular resource.
- A conclusion of *no impact* is appropriate when the analysis concludes that there would be no impact on a particular resource from the proposed project.
- An impact is considered *less than significant* if the analysis concludes that an impact on a particular resource topic would not be significant (i.e., would not exceed certain criteria or guidelines established by BAAQMD). Impacts are frequently considered less than significant when the changes are minor relative to the size of the available resource base or would not change an existing resource.
- An impact is considered *less than significant with mitigation incorporated* if the analysis concludes that an impact on a particular resource topic would be significant (i.e., would exceed certain criteria or guidelines established by BAAQMD), but would be reduced to a less than significant level through the implementation of mitigation measures.

Organization of This Document

The content and format of this document, described below, are designed to meet the requirements of CEQA.

- Chapter 1, "Introduction," identifies the purpose, scope, and terminology of the document.
- Chapter 2, "Description of the Proposed Rule," provides background information of Regulation 9, Rule 9, describes the proposed rule amendments, and describes the area and facilities that would be affected by the amendments.
- Chapter 3, "Environmental Checklist," presents the checklist responses for each resource topic. This chapter includes a brief setting description for each resource

area and identifies the impact of the proposed rule amendments on the resources topics listed in the checklist.

- Chapter 4, "References Cited," identifies all printed references and personal communications cited in this report.

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Chapter 2

Description of the Proposed Rule

Background

Bay Area 2005 Ozone Strategy Control Measure SS-14 proposes amendments to Bay Area Air Quality Management District Regulation 9, Rule 9 (Rule 9-9): Nitrogen Oxides (NOx) from Stationary Gas Turbines. The proposed amendments would implement the control measure by supplementing existing requirements in Rule 9-9.

Stationary gas turbines regulated under Rule 9-9 are internal combustion engines, typically powered by natural gas, used to generate electricity or mechanical power. Rule 9-9 governs NOx emissions from stationary gas turbines.

There are 155 permitted turbines located at various facilities in the Bay Area Air Quality Management District (BAAQMD or District). These units cover a wide range of sizes, fuels (natural gas, refinery or waste gas, or liquid fuels), operating configurations (simple cycle or combined cycle), operating modes (continuous, intermittent, or emergency standby), and existing NOx limits. These turbines currently emit an estimated 6.5 tons/day of NOx. These estimated emissions were calculated based on a review of each permitted turbine's current fuel use, permit conditions, and source tests.

Ninety two of the 155 gas turbines operate continuously in a wide variety of applications. Forty three of these turbines are large, greater than 10 MW capacity. Twenty one large gas turbines currently emit NOx below Best Available Retrofit Control Technology (BARCT) levels established by Regulation 9, Rule 9. Another 10 large gas turbines are already equipped with Selective Catalytic Reduction (SCR) control technology. Thirteen are mid-sized turbines, ranging from 3 to 10 MW capacity. Thirty six gas turbines are small, less than 3 MW.

Of the continuously operating turbines, nine large and six mid-size gas turbine power trains burn refinery fuel or waste gas as their primary fuel. Two of the large turbines burn diesel fuel. Refinery fuel gas, waste gas, and liquid fuels generate more NOx than natural gas because it is more difficult to control turbine flame temperatures when burning a mixture of gases or liquids. There has been very little technology development effort to improve NOx performance from turbines burning gas or liquid mixtures, so options for significant improvements from these turbines are very limited.

Fifteen turbines operate intermittently as peaking power turbines. Forty eight turbines operate on a limited use basis, less than 877 hours per year. Eleven turbines are used for testing and research, and 37 are used for standby/emergency power. Most of these turbines only operate a few hours each week, or are tested monthly.

The 1988 California Clean Air Act (CCAA) set the overall statewide air quality planning requirements. The CCAA requires the District to adopt BARCT for existing permitted stationary sources. The California Air Resources Board (ARB), in coordination with local air districts, developed a guidance document in 1992 entitled "Determination of Reasonably Available Control Technology (RACT) and Best Available Retrofit Control Technology (BARCT) for the Control of Oxides of Nitrogen from Stationary Gas Turbines" to aid local districts with the adoption of NOx regulations. The RACT/BARCT Guidelines included a suggested NOx control rule for air districts to use in developing their respective BARCT rules for the control of NOx from gas turbines. The District used this ARB guideline as a template for Regulation 9, Rule 9.

Regulation 9, Rule 9 was adopted pursuant to the region's first plan prepared under the CCAA's ozone planning requirements, the Bay Area 1991 Clean Air Plan (CAP). Regulation 9, Rule 9 was adopted on May 5, 1993, and amended on September 21, 1994 to accommodate a delay in development of Dry Low NOx (DLN) combustion technology necessary to meet the NOx standards. By January 1, 1997 all gas turbines subject to the regulation were required to be in compliance with all applicable standards.

Objectives

In Control Measure SS-14, the District committed to evaluate emissions of NOx from stationary gas turbines and determine if recent advances in NOx emissions control technology could be implemented to further reduce NOx emissions from the stationary gas turbines in the Bay Area. The objective of the amendments for Rule 9-9 is to further reduce NOx emissions from stationary gas turbines in order to reduce ozone levels in the Bay Area and reduce transport of air pollutants to neighboring air basins. The Bay Area and neighboring regions are not yet in attainment with the State one-hour ozone standard, so further reductions in ozone precursors, NOx and reactive organic gases (ROG) are needed. Additional NOx reductions can be achieved by taking advantage of improvements in Dry Low NOx (DLN) combustion technology, and improvements in the performance of SCR catalysts that have occurred since this rule was last amended in 1994.

The ARB has set a California one-hour ozone standard to define the level considered safe for human health. The Bay Area is a non-attainment area for the state one-hour standard. Under State law, non-attainment areas must prepare plans showing how they will attain the state standard. The 2005 Ozone Strategy is the most recent planning document for the State one-hour ozone standard. In addition, ARB's Transport Mitigation Requirements require upwind districts, including the BAAQMD, to adopt measures to reduce transport of ozone and ozone precursors to neighboring air basins.

The 2005 Ozone Strategy includes measures to reduce emissions of the pollutants that form ozone, i.e., nitrogen oxides and reactive organic gases. These measures may be proposals to adopt new regulations or amendments to existing regulations.

Proposed Amendments

The District is proposing amendments to Rule 9-9 to provide the maximum feasible NOx reduction and to reduce ground level ozone in the Bay Area and transport to neighboring air basins during the summer months. These standards reflect best technology advancements since this rule was last amended. Implementation of the proposed standards, including reductions from some turbines that have been recently shut down, would reduce NOx emissions by an estimated 0.43 tons/day. This represents a 7 percent reduction in daily NOx from gas turbines.

The proposed amendments to Regulation 9, Rule 9 categorize turbines by heat input rating rather than megawatt output. Table 2.1 and Table 2.2 show the categories of turbines for which NOx emissions limits are proposed to be reduced.

Table 2.1 Proposed NOx Limits, Full Use Turbines

Turbine Heat Rate	Fuel	
	Natural Gas	Refinery Gas/ Landfill Gas / LPG
5 – 50 MM Btu/hour (0.3 – 3 MW)		2.53 lbs/MW hr or 50 ppm
> 50 – 150 MM Btu/hour (3 – 10 MW) • Water/Steam Injection enhancement available • DLN technology available	1.64 lbs/MW hr or 35 ppm 1.17 lbs/MW hr or 25 ppm	2.34 lbs/MW hr or 50 ppm
> 250 – 500 MM Btu/hour (19 – 40 MW)	0.43 lbs/MW hr or 9 ppm	0.43 lbs/MW hr or 9 ppm
> 500 MM Btu/hour - *** (40+ MW)	0.15 lbs/MW hr or 5 ppm	

Table 2.2 Proposed NOx Limits, Limited Use Turbines

Turbine Heat Rate	Fuel	
	Natural Gas	Liquid Fuel
> 250 – 500 MM Btu/hour (19 – 40 MW)	1.17 lbs/MW hr or 25 ppm	1.97 lbs/MW hr or 42 ppm
> 500 MM Btu/hour (40+ MW)	0.72 lbs/MW hr or 25 ppm	1.21 lbs/MW hr or 42 ppm

Note: Other turbine size categories retain existing NOx limits.

The proposed amendments to Regulation 9, Rule 9 also include a new method of measuring compliance, pounds NOx per megawatt-hr (lbs NOx/MW-hr). The District

intends to retain the current NOx emission limits as interim standards until new standards come into effect. Finally, the District is proposing to add an exemption from the new emission limits for very limited use turbines that are not used over 400 hours per year.

Ten facilities will have to undertake modifications to their gas turbines to meet the proposed emission limits. One facility, Calpine Gilroy, may install DLN technology or may reduce operating hours to qualify as a low-usage turbine. Three turbines currently equipped with SCR will have to increase the amount of ammonia injected, and the remaining six turbines will have to enhance their water or steam injection technology or may choose to install DLN technology to meet the proposed emission limits.

The implementation timetable proposed is 18 months for design and application for an Authority to Construct, and 18 months for construction and startup, or at the next turnaround (which ever is later), but no later than January 1, 2012. Other minor and editorial amendments are also proposed. The District is proposing a July 1, 2010 effective date for these new emission limits. Interim compliance dates for submission of an Authority to Construct for turbine modifications is included. Other proposed amendments provide new definitions; administrative, recordkeeping and monitoring requirements; and test methods where necessary to clarify and enforce the new provisions in the rule.

Affected Area

The proposed rule amendments would apply to facilities under BAAQMD jurisdiction. The BAAQMD jurisdiction includes all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma counties (approximately 5,600 square miles). The San Francisco Bay Area is characterized by a large, shallow basin surrounded by coastal mountain ranges tapering into sheltered inland valleys. The combined climatic and topographic factors result in increased potential for the accumulation of air pollutants in the inland valleys and reduced potential for buildup of air pollutants along the coast. The Basin is bounded by the Pacific Ocean to the west and includes complex terrain consisting of coastal mountain ranges, inland valleys, and bays.

The facilities affected by the proposed rule amendments are located within the jurisdiction of the Bay Area Air Quality Management District (see Figure 1).

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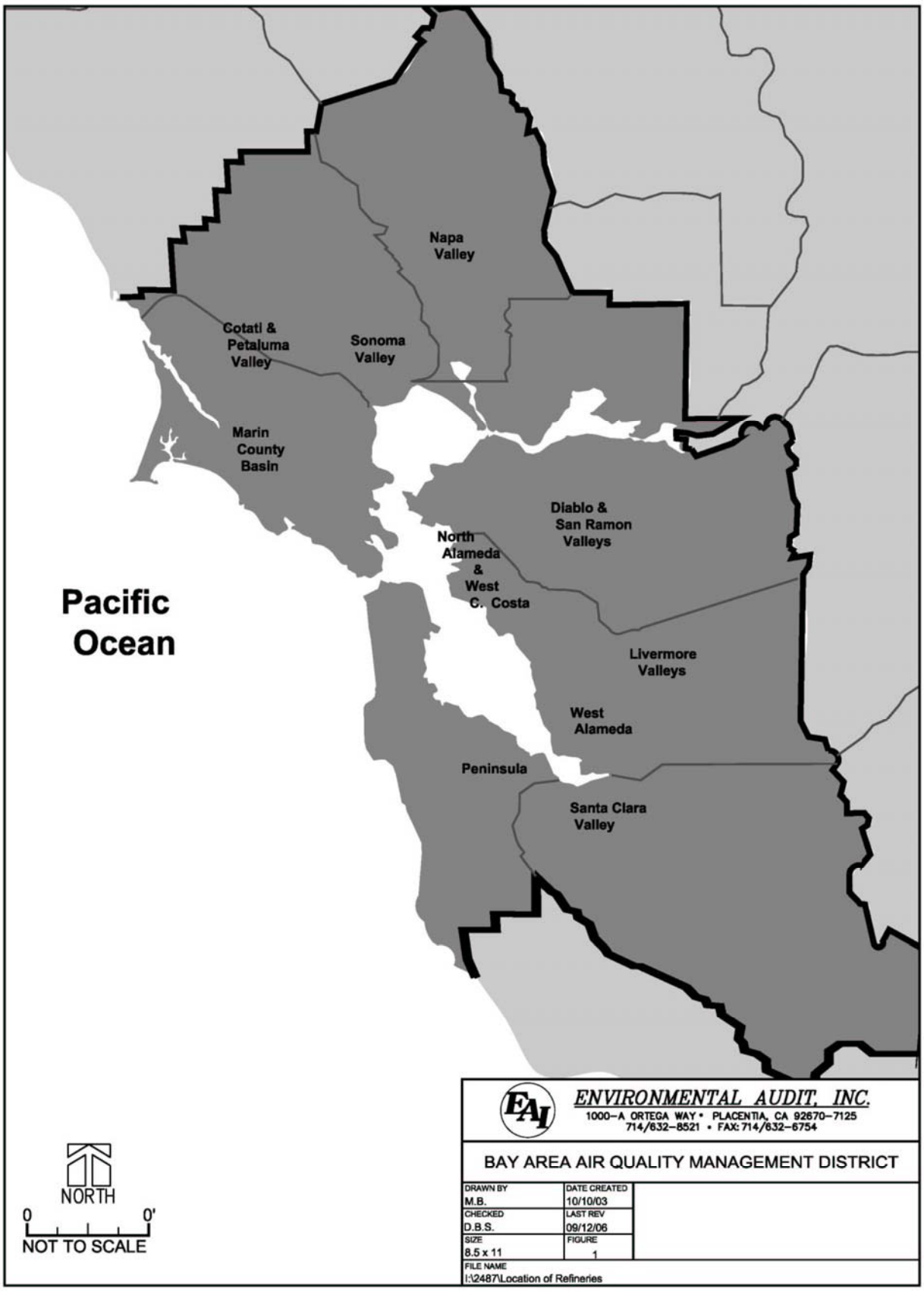
Napa Valley
Cotati & Petaluma Valley
Sonoma Valley
Marin County Basin
Diablo & San Ramon Valleys
North Alameda & West C. Costa
Pacific Ocean
Livermore Valleys
West Alameda
Peninsula
Santa Clara Valley
NORTH
0 0'
NOT TO SCALE
ENVIRONMENTAL AUDIT, INC.
1000-A ORTEGA WAY • PLACENTIA, CA 92670-7125
714/632-8521 • FAX: 714/632-6754
BAY AREA AIR QUALITY MANAGEMENT DISTRICT
DRAWN BY M.B.
DATE CREATED 10/10/03
CHECKED D.B.S.
LAST REV 09/12/06
SIZE 8.5 x 11
FIGURE 1
FILE NAME I:\2487\Location of Refineries

Chapter 3

Environmental Checklist

ENVIRONMENTAL CHECKLIST FORM

1. Project Title:	Bay Area Air Quality Management District (BAAQMD) Proposed Amendments to Regulation 9, Rule 9.
2. Lead Agency Name and Address:	Bay Area Air Quality Management District 939 Ellis Street San Francisco, California 94109
3. Contact Person and Phone Number:	Guy Gimlen, Planning and Research Division 415/749-4734 or ggimlen@baaqmd.gov
4. Project Location:	This rule amendment applies to the area within the jurisdiction of the Bay Area Air Quality Management District, which encompasses all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties.
5. Project Sponsor's Name and Address:	Bay Area Air Quality Management District 939 Ellis Street San Francisco, California 94109
6. General Plan Designation:	The rule amendments apply to facilities with stationary gas turbines that are usually located in heavy manufacturing or industrial areas.
7. Zoning	The rule amendments apply to facilities with stationary gas turbines that are usually located in heavy manufacturing or industrial areas.
8. Description of Project	See "Background" in Chapter 2.
9. Surrounding Land Uses and Setting	See "Affected Area" in Chapter 2.
10. Other Public Agencies Whose Approval Is Required	None

Environmental Factors Potentially Affected:

The environmental factors checked below would potentially be affected by this Project (i.e., the project would involve one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality	☐ Land Use/Planning
☐ Mineral Resources	☐ Noise	☐ Population/Housing
☐ Public Services	☐ Recreation	☐ Transportation/Traffic
☐ Utilities/Service Systems	☐ Mandatory Findings of Significance	

Determination:

On the basis of this initial evaluation:

☑ I find the proposed project COULD NOT have a significant effect on the environment, and that a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be significant effects in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have an impact on the environment that is "potentially significant" or "potentially significant unless mitigated" but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

_____ _____

Signature Date

_____ _____

Printed Name For

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less-than-Significant Impact	No Impact
I.	**AESTHETICS.**				
	Would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	☐	☐	☐	☑
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☑
d)	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses

Many of the facilities with stationary gas turbines affected by the proposed rule amendments are located in the industrial areas throughout the Bay Area. Scenic highways or corridors are generally not located in the vicinity of industrial areas.

Regulatory Background

Visual resources are generally protected by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

I a-d. The proposed amendments to Regulation 9, Rule 9 (Rule 9-9) would further reduce NOx emissions from stationary gas turbines in order to reduce ozone levels in the Bay Area and reduce transport of air pollutants to neighboring air basins. The proposed amendments are not expected to require the construction of any major new structures that would be visible to areas outside of the affected facilities and are not expected to result in any adverse aesthetic impacts.

Facilities are expected to comply with Rule 9-9 by installing DLN technology, increasing ammonia injection, or enhancing steam or water injection. Some facilities may cut back on operating hours. Of these compliance methods, construction activities would only be required for installing DLN technology and enhancing steam or water injection. These construction activities would involve minor changes to existing gas turbines. Once completed, the modifications would not be visible. Further, increased or enhanced ammonia, steam or water injection, is not expected to result in any physical changes to the facilities that would be visible to the surrounding community. The rule amendment would also not require any new sources of light or glare. The facilities where gas turbines are located are already operating and lighted, as necessary. Therefore, no aesthetic impacts are expected due to the proposed project.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE RESOURCES.				
In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☑
b) Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	☐	☐	☐	☑
c) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses. Some of these agricultural lands are under Williamson Act contracts.

The facilities with stationary gas turbines affected by the proposed rule amendments are located in industrial areas throughout the Bay Area. Agricultural resources are generally not located in the vicinity of heavy industrial areas.

Regulatory Background

Agricultural resources are generally protected by the City and/or County General Plans, Community Plans through land use and zoning requirements, as well as any applicable specific plans, ordinances, local coastal plans, and redevelopment plans.

Discussion of Impacts

II a-c. The proposed amendments to Rule 9-9 would further reduce NOx emissions from stationary gas turbines in order to reduce ozone levels in the Bay Area and reduce transport of air pollutants to neighboring air basins. Facilities are expected to comply with rule 9-9 by installing DLN technology, increasing ammonia injection or enhancing steam or water injection. Of these compliance methods, construction activities would only be required for installing DLN technology and enhancing steam or water injection. These construction activities would involve minor changes to existing gas turbines. No construction activities are expected outside of the boundaries of the existing industrial facilities where the gas turbines are located. Therefore, no impacts to agricultural resources are expected due to the proposed project.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY				
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☑
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☐	☐	☑
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☑

d)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☑
e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☑	☐
f)	Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	☐	☐	☐	☑

Setting

Meteorological Conditions

The summer climate of the West Coast is dominated by a semi-permanent high centered over the northeastern Pacific Ocean. Because this high pressure cell is quite persistent, storms rarely affect the California coast during the summer. Thus the conditions that persist along the coast of California during summer are a northwest air flow and negligible precipitation. A thermal low pressure area from the Sonoran-Mojave Desert also causes air to flow onshore over the San Francisco Bay Area much of the summer.

In winter, the Pacific High weakens and shifts southward, upwelling ceases, and winter storms become frequent. Almost all of the Bay Area's annual precipitation takes place in the November through April period. During the winter rainy periods, inversions are weak or nonexistent, winds are often moderate and air pollution potential is very low. During winter periods when the Pacific high becomes dominant, inversions become strong and often are surface based; winds are light and pollution potential is high. These periods are characterized by winds that flow out of the Central Valley into the Bay Area and often include tule fog.

Topography

The San Francisco Bay Area is characterized by complex terrain consisting of coastal mountain ranges, inland valleys and bays. Elevations of 1,500 feet are common in the higher terrain of this area. Normal wind flow over the area becomes distorted in the lower elevations, especially when the wind velocity is not strong. This distortion is reduced when stronger winds and unstable air masses move over the areas. The distortion is greatest when low level inversions are present with the surface air, beneath the inversion, flowing independently of the air above the inversion.

Winds

In summer, the northwest winds to the west of the Pacific coastline are drawn into the interior through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately to the south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more nearly from the west as they stream through the Golden Gate. This channeling of the flow through the Golden Gate produces a jet that sweeps eastward but widens downstream producing southwest winds at Berkeley and northwest winds at San Jose; a branch curves

eastward through the Carquinez Straits and into the Central Valley. Wind speeds may be locally strong in regions where air is channeled through a narrow opening such as the Carquinez Strait, the Golden Gate, or San Bruno Gap.

In winter, the Bay Area experiences periods of storminess and moderate-to-strong winds and periods of stagnation with very light winds. Winter stagnation episodes are characterized by outflow from the Central Valley, nighttime drainage flows in coastal valleys, week onshore flows in the afternoon and otherwise light and variable winds.

Temperature

In summer, the distribution of temperature near the surface over the Bay Area is determined in large part by the effect of the differential heating between land and water surfaces. This process produces a large-scale gradient between the coast and the Central Valley as well as small-scale local gradients along the shorelines of the ocean and bays. The winter mean temperature high and lows reverse the summer relationship; daytime variations are small while mean minimum nighttime temperatures show large differences and strong gradients. The moderating effect of the ocean influences warmer minimums along the coast and penetrating the Bay. The coldest temperatures are in the sheltered valleys, implying strong radiation inversions and very limited vertical diffusion.

Inversions

A primary factor in air quality is the mixing depth, i.e., the vertical dimension available for dilution of contaminant sources near the ground. Over the Bay Area the frequent occurrence of temperature inversions limits this mixing depth and consequently limits the availability of air for dilution. A temperature inversion may be described as a layer or layers of warmer air over cooler air.

Precipitation

The San Francisco Bay Area climate is characterized by moderately wet winters and dry summers. Winter rains (December through March) account for about 75 percent of the average annual rainfall; about 90 percent of the annual total rainfall is received in November to April period; and between June and September, normal rainfall is typically less than 0.10 inches. Annual precipitation amounts show greater differences in short distances. Annual totals exceed 40 inches in the mountains and are less than 15 inches in the sheltered valleys.

Pollution Potential

The Bay Area is subject to a combination of physiographic and climatic factors which result in a low potential for pollutant buildups near the coast and a high potential in sheltered inland valleys. In summer, areas with high average maximum temperatures tend to be sheltered inland valleys with abundant sunshine and light winds. Areas with low average maximum temperatures are exposed to the prevailing ocean breeze and experience frequent fog or stratus. Locations

with warm summer days have a higher pollution potential than the cooler locations along the coast and bays.

In winter, pollution potential is related to the nighttime minimum temperature. Low minimum temperatures are associated with strong radiation inversions in inland valleys that are protected from the moderating influences of the ocean and bays. Conversely, coastal locations experience higher average nighttime temperatures, weaker inversions, stronger breezes and consequently less air pollution potential.

Air Quality

Criteria Pollutants

It is the responsibility of the BAAQMD to ensure that State and federal ambient air quality standards are achieved and maintained in its geographical jurisdiction. Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter less than 10 microns in diameter (PM 10), particulate matter less than 2.5 microns in diameter (PM 2.5), sulfur dioxide (SO_2) and lead. These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. The California standards are more stringent than the federal standards. California has also established standards for sulfate, visibility, hydrogen sulfide, and vinyl chloride.

The State and national ambient air quality standards for each of these pollutants and their effects on health are summarized in Table 3-1. The BAAQMD monitors levels of various criteria pollutants at 26 monitoring stations. The 2005 air quality data from the BAAQMD's monitoring stations are presented in Table 3-2.

Air quality conditions in the San Francisco Bay Area have improved since the Air District was created in 1955. Ambient concentrations of air pollutants and the number of days on which the region exceeds air quality standards have fallen dramatically (see Table 3-3). The Air District is in attainment of the State and federal ambient air quality standards for CO, nitrogen oxides (NOx), and sulfur dioxides (SO_2). The Air District is not considered to be in attainment with the State PM 10 and PM 2.5 standards.

The 2005 air quality data from the BAAQMD monitoring stations are presented in Table 3-2. All monitoring stations were below the State and federal ambient air quality standards for CO, NO_2, and SO_2.. The federal 8-hour standard was exceeded on one day in the District in 2005. The Bay Area is designated as a non-attainment area for the California 1-hour ozone standard. The State 1-hour ozone standard was exceeded on 9 days in 2005 in the District, most frequently in the Eastern District (Livermore) (see Table 3-2).

All monitoring stations were in compliance with the federal PM 10 standards. The California PM 10 standards were exceeded on 6 days in 2005, most frequently in San Jose. The Air District did not exceed the federal PM 2.5 standard in 2005 (see Table 3-2).

TABLE 3-1

FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

	STATE STANDARD	FEDERAL PRIMARY STANDARD	MOST RELEVANT EFFECTS
AIR POLLUTANT	CONCENTRATION/ AVERAGING TIME	CONCENTRATION/ AVERAGING TIME	
Ozone	0.09 ppm, 1-hr. avg. > 0.070 ppm, 8-hr	0.08 ppm, 8-hr avg. >	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide	9.0 ppm, 8-hr avg. > 20 ppm, 1-hr avg. >	9 ppm, 8-hr avg.> 35 ppm, 1-hr avg.>	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide	0.25 ppm, 1-hr avg. >	0.053 ppm, ann. avg.>	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide	0.04 ppm, 24-hr avg.> 0.25 ppm, 1-hr. avg. >	0.03 ppm, ann. avg.> 0.14 ppm, 24-hr avg.>	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
Suspended Particulate Matter (PM10)	20 $\mu g/m^3$, annarithmetic mean > 50 $\mu g/m^3$, 24-hr average>	50 $\mu g/m^3$, annual arithmetic mean > 150 $\mu g/m^3$, 24-hr avg.>	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children
Suspended Particulate Matter (PM2.5)	12 $\mu g/m^3$, annual arithmetic mean>	15 $\mu g/m^3$, annual arithmetic mean> 35 $\mu g/m^3$, 24-hour average>	Decreased lung function from exposures and exacerbation of symptoms in sensitive patients with respiratory disease; elderly; children.
Sulfates	25 $\mu g/m^3$, 24-hr avg. >=		(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage
Lead	1.5 $\mu g/m^3$, 30-day avg. >=	1.5 $\mu g/m^3$, calendar quarter>	(a) Increased body burden; (b) Impairment of blood formation and nerve conduction
Visibility-Reducing Particles	In sufficient amount to give an extinction coefficient >0.23 inverse kilometers (visual range to less than 10 miles) with relative humidity less than 70%, 8-hour average (10am – 6pm PST)		Nephelometry and AISI Tape Sampler; instrumental measurement on days when relative humidity is less than 70 percent

TABLE 3.2
BAY AREA AIR POLLUTION SUMMARY 2005

MONITORING STATIONS	Ozone						CARBON MONOXIDE			NITROGEN DIOXIDE			SULFUR DIOXIDE			PM10				PM2.5				
	Max 1-Hr	Cal Days	Max 8-Hr	Nat Days	Cal Days	3-Yr Avg	Max 1-Hr	Max 8-Hr	Nat/ Cal Days	Max 1-Hr	Ann Avg	Nat/Cal Days	Max 24-Hr	Ann Avg	Nat/ Cal Days	Ann Avg	Max 24-Hr	Nat Days	Cal Days	Max 24-Hr	Nat Days	3-Yr Avg	Ann Avg	3-Yr Avg
NORTH COUNTIES	(ppb)						(ppm)			(ppb)			(ppb)			($\mu g/m^3$)				($\mu g/m^3$)			($\mu g/m^3$)	
Napa	91	0	67	0		61	3.2	2.0	0	60	10	0	--	--	--	18.0	40		0	--	--	--	--	--
San Rafael	81	0	59	0		51	3.0	1.7	0	54	13	0	--	--	--	16.5	39	0	0	--	--	--	--	--
Santa Rosa	72	0	51	0		49	2.5	2.0	0	47	11	0	--	--	--	15.9	39	0	0	33.6	0	28.2	7.6	8.2
Vallejo	90	0	70	0		60	3.9	3.1	0	70	11	0	5	1.2	0	17.3	52	0	1	43.8	0	32.5	9.7	10.0
COAST & CENTRAL BAY																								
Oakland	68	0	45	0		39	3.4	2.4	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Richmond	--	--	--	--		--	--	--	--	--	--	--	6	1.1	0	--	--	--	--	--	--	--	--	--
San Francisco	58	0	54	0		48	2.5	2.1	0	66	16	0	7	1.4	0	20.1	46	0	1	43.6	0	32.6	9.5	9.9
San Pablo	66	0	57	0		52	2.8	1.3	0	54	12	0	6	1.7	0	19.0	42	0	1	--	--	--	--	--
EASTERN DISTRICT																								
Bethel Island	89	0	77	0	2	72	1.1	0.9	0	38	7	0	6	2.0	0	18.5	64	0	1	--	--	--	--	--
Concord	98	1	80	0	2	73	2.2	1.5	0	55	12	0	7		0	16.4	42	0	0	48.9	0	35.1*	9.0*	9.8*
Crockett	--	--	--	--		--	--	--	--	--	--	--	--	--	0	--	--	--	--	--	--	--	--	--
Fairfield	90	0	73	0	2	68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Livermore	120	6	90	1	7	78	3.4	1.8	0	72	14	0	--	--	--	18.8	49	0	0	32.1	0	29.4	9.0	9.4
Martinez	--	--	--	--		--	--	--	--	--	--	--	7	1.7	0	--	--	--	--	--	--	--	--	--
Pittsburg	94	0	78	0	2	69	3.3	1.7	0	58	11	0	9	2.4	0	20.1	57	0	1	--	--	--	--	--
SOUTH CENTRAL BAY																								
Fremont	105	1	78	0	1	60	3.2	2.0	0	69	15	0	--	--	--	17.8	54	0	1	33.4	0	27.6	9.0	9.0
Hayward	*	*	*	*		*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redwood City	84	0	61	0		57	4.5	2.3	0	62	15	0	--	--	--	20.9	81	0	2	30.9	0	27.8	8.8	9.0
San Leandro	99	1	61	0		52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SANTA CLARA VALLEY																								
Gilroy	87	0	67	0	0	71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Los Gatos	110	3	87	1	3	72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Jose Central*	113	1	80	0	1	61	4.3	3.1	0	74	19	0	--	--	--	22.3	54	0	2	54.6	0	39.0	11.8	11.7
San Jose East	110	1	83	0	1	59	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Jose, Tully Road	--	--	--	--		--	--	--	--	--	--	--	--	--	--	24.2	71	0	4	50.6	0	35.9	10.5	10.3
San Martin	108	2	77	0	3	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sunnyvale	97	1	73	0	1	64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Bay Area Days over Standard		**9**		**1**	**9**				**0**			**0**			**0**			**0**	**6**		**0**			

(ppm) = parts per million, (ppb) = parts per billion

TABLE 3-3

TEN-YEAR BAY AREA AIR QUALITY SUMMARY
Days over standards

YEAR	OZONE			CARBON MONOXIDE				NO_X	SULFUR DIOXIDE		PM10		PM2.5
	1-Hr		8-Hr	1-Hr		8-Hr		1-Hr	24-Hr		24-Hr*		24-Hr**
	Nat	Cal	Nat	Nat	Cal	Nat	Cal	Cal	Nat	Cal	Nat	Cal	Nat
1995	11	28	-	0	0	0	0	0	0	0	0	7	-
1996	8	34	-	0	0	0	0	0	0	0	0	3	-
1997	0	8	-	0	0	0	0	0	0	0	0	4	-
1998	8	29	16	0	0	0	0	0	0	0	0	5	-
1999	3	2	9	0	0	0	0	0	0	0	0	12	-
2000	3	12	4	0	0	0	0	0	0	0	0	7	1
2001	1	15	7	0	0	0	0	0	0	0	0	10	5
2002	2	16	7	0	0	0	0	0	0	0	0	6	5
2003	1	19	7	0	0	0	0	0	0	0	0	6	0
2004	0	7	0	0	0	0	0	0	0	0	0	7	1
2005	0	9	1	0	0	0	0	0	0	0	0	6	0

* PM10 is sampled every sixth day – actual days over standard can be estimated to be six times the numbers listed.
** 2000 is the first full year for which the Air District measured PM2.5 levels.

Toxic Air Pollutants

The precursor chemicals that form ozone are VOCs and NOx. Some of these VOCs are toxic air contaminants (TACs) and some are known carcinogens. The BAAQMD maintains a network of monitoring stations to monitor certain TACs in ambient air. In addition, the California Air Resources Board (CARB) maintains several monitoring stations in the Bay Area as part of a statewide toxics monitoring effort. The mean ambient concentrations of monitored TACs are listed in Table 3-4 based on monitoring conducted during 2002 for the monitoring stations closest to the refineries. The Richmond station is located at 7th Street downwind from the ChevronTexaco refinery and the Richmond parkway. The Crockett station is located at the end of Kendall Avenue generally downwind of the ConocoPhillips refinery. There are two Concord stations.

Regulatory Background

Criteria Pollutants

At the federal level, the Clean Air Act (CAA) Amendments of 1990 give the U.S. EPA additional authority to require states to reduce emissions of ozone precursors and particulate matter in non-attainment areas. The amendments set attainment deadlines based on the severity of problems. At the state level, CARB has traditionally established state ambient air quality standards, maintained oversight authority in air quality planning, developed programs for reducing emissions from motor vehicles, developed air emission inventories, collected air quality and meteorological data, and approved state implementation plans. At a local level, California's air districts, including the BAAQMD, are responsible for overseeing stationary source emissions, approving permits, maintaining emission inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required by CEQA.

TABLE 3-4

CONCENTRATIONS OF TOXIC AIR CONTAMINANTS IN THE BAY AREA[(1)]

CHEMICAL	MONITORING STATION (mean ppb)					
	Crockett	Concord (Treat Blvd)	Richmond	Bethel Island	Concord (Arnold)	Bay Area Mean
Benzene	0.24	0.51	0.44	0.33	0.53	0.47
Carbon Tetrachloride (CCl4)	0.11	0.13	0.11	0.11	0.11	0.11
Chloroform (CHCl3)	0.02	0.03	0.02	0.01	0.02	0.02
Methylene Chloride (DCM)	0.56	0.29	0.27	0.26	0.28	0.38
Ethylene Dibromide	0.01	0.01	0.01	0.01	0.01	0.01
Ethylene Dichloride	0.05	0.05	0.05	0.05	0.05	0.05
MTBE	0.40	0.71	0.61	0.45	0.86	0.75
Perchloroethylene	0.02	0.03	0.06	0.02	0.07	0.05
1,1,1-Trichloroethane (TCA)	0.07	0.05	0.03	0.03	0.12	0.11
Trichloroethylene	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	0.45	1.85	1.16	0.71	1.05	1.48
Vinyl Chloride	0.15	0.15	0.15	0.15	0.15	0.15

(1) BAAQMD, Toxic Air Contaminant, 2002 Annual Report, June 2004.

The BAAQMD is governed by a 22-member Board of Directors composed of publicly-elected officials apportioned according to the population of the represented counties. The BAAQMD has the authority to develop and enforce regulations for the control of air pollution within its jurisdiction. The BAAQMD is responsible for implementing emissions standards and other requirements of federal and state laws. It is also responsible for developing air quality planning documents required by both federal and state laws.

Toxic Air Contaminants

TACs are regulated in the District through federal, state, and local programs. At the federal level, TACs are regulated primarily under the authority of the CAA. Prior to the amendment of the CAA in 1990, source-specific National Emission Standards for Hazardous Air Pollutants (NESHAPs) were promulgated under Section 112 of the CAA for certain sources of radionuclides and Hazardous Air Pollutants (HAPs).

Title III of the 1990 CAA amendments requires U.S. EPA to promulgate NESHAPs on a specified schedule for certain categories of sources identified by U.S. EPA as emitting one or more of the 189 listed HAPs. Emission standards for major sources must require the maximum achievable control technology (MACT). MACT is defined as the maximum degree of emission reduction achievable considering cost and non-air quality health and environmental impacts and energy requirements. All NESHAPs were to be promulgated by the year 2000. Specific incremental progress in establishing standards must be made by the years 1992 (at least 40 source categories), 1994 (25 percent of the listed categories), 1997 (50 percent of remaining listed categories), and 2000 (remaining balance). The 1992 requirement was met; however, many of the four-year standards were not promulgated as scheduled. Promulgation of those standards has been rescheduled based on court ordered deadlines, or the aim to satisfy all Section 112 requirements in a timely manner.

Many of the sources of TACs that have been identified under the CAA are also subject to the California TAC regulatory programs. CARB developed three regulatory programs for the control of TACs. Each of the programs is discussed in the following subsections.

Control of TACs Under the TAC Identification and Control Program: California's TAC identification and control program, adopted in 1983 as Assembly Bill 1807 (AB 1807) (California Health and Safety Code §39662), is a two-step program in which substances are identified as TACs, and airborne toxic control measures (ATCMs) are adopted to control emissions from specific sources. Since adoption of the program, CARB has identified 18 TACs, and CARB adopted a regulation designating all 189 federal HAPs as TACs.

Control of TACs Under the Air Toxics "Hot Spots" Act: The Air Toxics Hot Spot Information and Assessment Act of 1987 (AB 2588) (California Health and Safety Code §39656) establishes a state-wide program to inventory and assess the risks from facilities that emit TACs and to notify the public about significant health risks associated with those emissions. Inventory reports must be updated every four years under current state law. The BAAQMD uses a maximum individual cancer risk of 10 in one million, or an ambient concentration above a non-cancer reference exposure level, as the threshold for notification.

Senate Bill (SB) 1731, enacted in 1992 (California Health and Safety Code §44390 et seq.), amended AB 2588 to include a requirement for facilities with significant risks to prepare and implement a risk reduction plan which will reduce the risk below a defined significant risk level within specified time limits. At a minimum, such facilities must, as quickly as feasible, reduce cancer risk levels that exceed 100 per one million. The BAAQMD adopted risk reduction requirements for perchloroethylene dry cleaners to fulfill the requirements of SB 1731.

Targeted Control of TACs Under the Community Air Risk Evaluation Program: In 2004, BAAQMD established the Community Air Risk Evaluation (CARE) program to identify locations with high emissions of TAC and high exposures of sensitive populations to TAC, and to use this information to help establish policies to guide mitigation strategies that obtain the greatest health benefit from TAC emission reductions.

For example, BAAQMD will use information derived from the CARE program to develop and implement targeted risk reduction programs, including grant and incentive programs, community outreach efforts, collaboration with other governmental agencies, model ordinances, new regulations for stationary sources and indirect sources, and advocacy for additional legislation.

Discussion of Impacts

III a. The objectives of the proposed rule amendments are to implement Control Measure SS-14 from the Bay Area 2005 Ozone Strategy in order to help reduce emissions of ozone forming compounds (e.g., NOx), and make Rule 9-9 more stringent. Because the proposed amendments directly implement the control measure, the proposed amendments are in compliance with the local air quality plan.

III b, c, d, and f. Rule 9-9 was adopted pursuant to the region's first plan prepared under the CCAA's ozone planning requirements, the Bay Area 1991 Clean Air Plan (CAP). Rule 9-9 was adopted on May 5, 1993, and amended in September 21, 1994 to accommodate a delay in development of DLN combustion technology necessary to meet the NOx standards. By January 1, 1997 all gas turbines subject to the regulation were required to be in compliance with all applicable standards. Control Measure SS-14 in the Bay Area 2005 Ozone Strategy required the BAAQMD to determine if further reductions in NOx emissions from stationary gas turbines was feasible.

Emissions: Emissions from stationary gas turbines include all the products of combustion. The primary concern with emissions from gas turbines in the Bay Area is NOx. Gas turbines also produce CO, sulfur oxides (SOx), ROG, and particulates (PM) emissions, but the contribution from gas turbines for each is relatively insignificant in the total emission inventory for the Bay Area.

Combustion in a stationary gas turbine also produces carbon dioxide (CO2), a growing concern with respect to climate change. NOx is formed from combustion of nitrogen in the fuel (fuel NOx), but the primary source of NOx is from the oxidation of nitrogen in the air (thermal NOx). Most gas turbines in the Bay Area burn only natural gas, which is negligible in nitrogen content. A few gas turbines can also burn liquid fuels (propane, butane, jet fuel or diesel fuel), but the nitrogen content in these fuels is very low. CO comes from incomplete combustion.

Controlling Emissions: There are two basic approaches for reducing NOx emissions: 1) minimize NOx generated during combustion; and 2) treat exhaust gases with various agents to reduce the NOx therein. The primary means for controlling generation of NOx emissions is to prevent NOx formation by cooling the flame temperature inside the combustion chamber in the gas turbine. In the earliest efforts to reduce combustion emissions, steam or water was injected into the combustor to absorb heat and cool the peak combustion temperature. A more recent approach is to regulate the flow of fuel into the combustor and thoroughly mix the fuel with the air using Dry Low NOx or DLN combustion technology to reduce combustion temperatures. Most manufacturers have developed DLN technology for their new gas turbines, but offer retrofit DLN on only select models of their older gas turbines. A few manufacturers have incorporated catalysts into their combustor designs to achieve complete combustion at even lower flame temperatures.

The primary means to treat NOx emissions after they are created is by chemically reacting the NOx with ammonia or urea in the presence of a catalyst to convert the NOx back into nitrogen. This process is referred to as Selective Catalytic Reduction (SCR). This technology has demonstrated 90 - 95% effectiveness in reducing NOx. A new means of treating the NOx in the flue gas, called SCONOX, has been developed in the last five years. It uses a catalyst to absorb the NOx, CO, and SOx from the flue gas. The catalyst is then regenerated, recycling the pollutants back to the inlet of the gas turbine. No turbines in the Bay Area currently use SCONOX technology.

Proposed Amendments: The District is proposing amendments to Rule 9-9 to provide the maximum feasible NOx reduction and to reduce ground level ozone in the Bay Area and neighboring air basins during the summer months. These standards reflect best technology advancements since this rule was last amended. Implementation of proposed standards would reduce NOx emissions by an estimated 0.43 tons/day. This represents an 7% reduction in daily NOx from gas turbines. The gas turbines impacted by amendments to Rule 9-9 are summarized in Chapter 2, Table 2-1.

The District proposes to reduce NOx emissions limits for the largest (500 MM Btu/hr heat input) gas turbines to 5 ppm from 15 ppm for gas turbines without SCR, and from 9 ppm for gas turbines with SCR. The District proposes to reduce NOx emissions limits from other sizes of turbines according to heat input, 9 ppm for turbines rated 251 – 500 MM Btu/hr, and 15 ppm for turbines rated 151 – 250 MM Btu/hr. Emission limits from mid-sized turbines, (50 – 150 MM Btu/hr) are proposed to be reduced according to the availability of technology, from 42 ppm to 35 ppm for turbines where enhanced steam or water injection technology is available, and to 25 ppm for turbines with DLN technology available. The District intends to retain the current NOx emission limits as interim standards until new standards come into effect.

The increased or enhanced ammonia option may result in a slight increase in ammonia deliveries (a maximum of one truck per day) within the Bay Area. This emissions from one truck would not have a noticeable increase in air emissions in the Bay Area. Based on the above air quality analysis, the proposed amendments to Rule 9-9 are expected to result in reductions in NOx emissions and, thus, provide air quality benefits. No significant adverse impacts to air quality are expected. Increased or enhanced ammonia injection may also result in an increase in ammonia emissions, referred to as ammonia slip. Ammonia reacts to form ammonium sulfate and ammonium nitrate, both of which are a significant fraction of PM 2.5 particles. Limited data suggest that there is an excess of ammonia in the Bay Area atmosphere, mostly from biogenic sources, so PM 2.5 is limited by the availability of nitrate and sulfate compounds. Reducing NOx reduces the availability of nitrate compounds for PM 2.5 formation. Also, ammonia slip is limited by permit conditions at existing turbines. Consequently, no significant adverse air quality impact from PM 2.5 formation is anticipated from the proposed amendments.

Further construction activities are expected to be limited to facilities that may install new DLN technology or enhance their existing steam or water injection. No major construction activities are expected and no significant increase in construction emissions is expected.

The Bay Area is ROG-limited, that is, there are excess NOx emissions available in the atmosphere to form ozone. The California Clean Air Act and CARB Transport Mitigation Requirements both require reductions in NOx in the Bay Area, and, ultimately, a reduction is necessary to meet the stringent California ozone standards in the Bay Area and neighboring air basins.

NOx functions not only as a precursor to ozone formation, but also reacts with ozone, destroying it. This latter process is referred to as "scavenging." Because of this, large reductions in NOx from a significant point source can result in a potential adverse air quality impact – an increase in ozone at a nearby area downwind from the source, termed an ozone "hot spot." The phenomenon of ozone hot spots was addressed in the 1991 Clean Air Plan and Program Environmental Impact Report and subsequently in the rules adopted to reduce NOx from refineries (Regulation 9, Rule 10: Nitrogen Oxides and Carbon Monoxide from Boilers, Steam Generators and Process Heaters in Petroleum Refineries) and electric power generating boilers (Regulation 9, Rule 11: Nitrogen Oxides and Carbon Monoxide from Electric Power Generating Steam Boilers). These are the only sources where the NOx emission reduction has been significant enough at the source to create a potential adverse impact.

Ozone modeling done in 1993 for Regulation 9, Rule 10 and Rule 11 projected a potential ozone increase near the sources of up to one part per hundred million (.01 ppm) due to NOx reductions. Regulation 9, Rule 10 reduced NOx emissions by 21 tons per day, and Regulation 9, Rule 11 reduced NOx emissions from 10 to 26 tons per day. The modeling also projected a commensurate reduction in ozone farther downwind. In each case, the projected adverse impact was not judged to be significant and a Negative Declaration was prepared. The projected reduction from the proposed amendments to Regulation 9, Rule 9 is less than one tenth the magnitude of Rule 10 and 11 reductions, and would not produce a nearby ozone hot spot. Consequently, no impacts from the ozone hot spot phenomena are anticipated.

Mid-sized turbines, those in the 50 – 150 MM Btu/hr range, may use enhanced water or steam inspection to meet a proposed NOx limit of 35 ppm. Water or steam cools the flame temperature, which may lead to less efficient combustion. Less efficient combustion produces CO. Permitted turbines already have permit conditions that limit CO, and the Bay Area is in attainment for federal and state CO standards. Because of the existing permit condition limitations, any CO increase would not be anticipated to be significant.

III e. The proposed project is not expected to result in an increase in odors. The amendments to Rule 9-9 propose improved technology for reducing NOx emissions from stationary gas turbines. Facilities are expected to comply with installing DLN technology, increasing ammonia injection or enhanced steam or water injection. Facilities that comply using increased ammonia injection have the potential to generate additional ammonia emissions. Ammonia can have a strong odor; however, the proposed project is not expected to generate substantial ammonia emissions. Ammonia emissions (ammonia slip) are already limited by existing permit conditions. Since exhaust emissions are bouyant as a result of being heated, ammonia will disperse and ultimate ground level concentrations will be substantially lower than 5 ppm, one of the common permit condition limits. Five ppm is below the odor threshold for ammonia of 20 ppm (OSHA, 2005). Potential odor impacts from the proposed project are not expected to be significant. Therefore, no significantly adverse incremental odor impacts are expected due to the proposed rule amendments.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV.	**BIOLOGICAL RESOURCES.** Would the project:				
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☑
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☑
e)	Conflicting with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
f)	Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses. A wide variety of biological resources are located within the Bay Area.

The facilities affected by the proposed rule amendments are located in the Bay Area-Delta Bioregion (as defined by the State's Natural Communities Conservation Program). This Bioregion is comprised of a variety of natural communities, which range from salt marshes to chaparral to oak woodland. The facilities affected by the proposed rule amendments are located in industrial areas throughout the Bay Area. The affected facilities have been graded to develop the various industrial structures and are typically, surrounded by other commercial and industrial facilities. Native vegetation, other than landscape vegetation, has generally been removed from operating portions of the industrial facilities to minimize safety and fire hazards.

Regulatory Background

Biological resources are generally protected by the City and/or County General Plans through land use and zoning requirements which minimize or prohibit development in biologically sensitive areas. Biological resources are also protected by the California Department of Fish and Game, and the U.S. Fish and Wildlife Service. The U.S Fish and Wildlife Service and National Marine Fisheries Service oversee the federal Endangered Species Act. Development permits may be required from one or both of these agencies if development would impact rare or endangered species. The California Department of Fish and Game administers the California Endangered Species Act which prohibits impacting endangered and threatened species. The U.S. Army Corps of Engineers and the U.S. EPA regulate the discharge of dredge or fill material into waters of the United States, including wetlands.

Discussion of Impacts

IV a – f. No impacts on biological resources are anticipated from the proposed rule amendments which would apply to existing facilities with stationary gas turbines. The turbines already exist and are located within the confines of existing industrial facilities. The existing facilities have been graded and developed and biological resources, with the exception of landscape species, have generally been removed. Construction activities are limited to minor activities associated with those facilities that will install DLN technology or enhance existing steam or water injection. These construction activities would involve minor changes to existing gas turbines. No construction activities are expected outside of the boundaries of the existing industrial facilities where the gas turbines are located. Therefore, no impacts to biological resources are expected due to the proposed project.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
V.	**CULTURAL RESOURCES.** Would the project:				
a)	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☑
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☐	☑
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☑
d)	Disturb any human remains, including those interred outside a formal cemeteries?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential, agricultural and open space uses. Cultural resources are defined as buildings, sites, structures, or objects which might have historical architectural, archaeological, cultural, or scientific importance.

The Carquinez Strait represents the entry point for the Sacramento and San Joaquin Rivers into the San Francisco Bay. This locality lies within the San Francisco Bay and the west end of the Central Valley archaeological regions, both of which contain a rich array of prehistoric and historical cultural resources. The areas surrounding the Carquinez Strait and Suisun Bay have been occupied for millennia given their abundant combination of littoral and oak woodland resources.

The facilities with stationary gas turbines affected by the proposed rule amendments are located in industrial areas throughout the Bay Area. The sites have been graded to develop the various industrial structures and are typically surrounded by other commercial and industrial facilities. Cultural resources are generally not located within the operating portions of industrial facilities.

Regulatory Background

The State CEQA Guidelines define a significant cultural resource as a "resource listed or eligible for listing on the California Register of Historical Resources" (Public Resources Code Section 5024.1). A project would have a significant impact if it would cause a substantial adverse change in the significance of a historical resource (State CEQA Guidelines Section 15064.5(b)). A substantial adverse change in the significance of a historical resource would result from an action that would demolish or adversely alter the physical characteristics of the historical resource that convey its historical significance and that qualify the resource for inclusion in the California Register of Historical Resources or a local register or survey that meets the requirements of Public Resources Code Sections 50020.1(k) and 5024.1(g).

Discussion of Impacts

V a – d. No impacts on cultural resources are anticipated from the proposed rule amendments that would apply to existing facilities with stationary gas turbines. The turbines already exist and are located within the confines of existing facilities. The existing facilities have been graded and developed. Construction activities are limited to minor activities associated with those facilities that will install DLN technology or enhance existing steam or water injection technology. These construction activities would involve minor changes to existing gas turbines and only one facility is expected to install DLN. No construction activities are expected outside of the boundaries of the existing industrial facilities where the gas turbines are located. Therefore, no impacts to cultural resources are expected due to the proposed project.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS.				
Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☐	☑
• Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☑
• Strong seismic groundshaking?	☐	☐	☐	☑
• Seismic–related ground failure, including liquefaction?	☐	☐	☐	☑
• Landslides?	☐	☐	☐	☑

b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☑
c)	Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☑
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☑
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses. The facilities affected by the proposed rule amendments are located in the industrial portions throughout the Bay Area.

The affected facilities with stationary gas turbines are located in the natural region of California known as the Coast Ranges geomorphic province. The province is characterized by a series of northwest trending ridges and valleys controlled by tectonic folding and faulting, examples of which include the Suisun Bay, East Bay Hills, Briones Hills, Vaca Mountains, Napa Valley, and Diablo Ranges.

Regional basement rocks consist of the highly deformed Great Valley Sequence, which include massive beds of sandstone inter-fingered with siltstone and shale. Unconsolidated alluvial deposits, artificial fill, and estuarine deposits, (including Bay Mud) underlie the low-lying region along the margins of the Carquinez Straight and Suisun Bay. The estuarine sediments found along the shorelines of Solano County are soft, water-saturated mud, peat and loose sands. The organic, soft, clay-rich sediments along the San Francisco and San Pablo Bays are referred to locally as Bay Mud and can present a variety of engineering challenges due to inherent low strength, compressibility and saturated conditions. Landslides in the region occur in weak, easily weathered bedrock on relatively steep slopes.

The San Francisco Bay Area is a seismically active region, which is situated on a plate boundary marked by the San Andreas Fault System. Several northwest trending active and potentially active faults are included with this fault system. Under the Alquist-Priolo Earthquake Fault Zoning Act, Earthquake Fault Zones were established by the California Division of Mines and Geology along “active” faults, or faults along which surface rupture occurred in Holocene time (the last 11,000 years). In the Bay area, these faults include the San Andreas, Hayward, Rodgers Creek-Healdsburg, Concord-Green Valley, Greenville-Marsh Creek, Seal

Cove/San Gregorio and West Napa faults. Other smaller faults in the region classified as potentially active include the Southampton and Franklin faults.

Ground movement intensity during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geological material. Areas that are underlain by bedrock tend to experience less ground shaking than those underlain by unconsolidated sediments such as artificial fill. Earthquake ground shaking may have secondary effects on certain foundation materials, including liquefaction, seismically induced settlement, and lateral spreading.

Regulatory Background

Construction is regulated by the local City or County building codes that provide requirements for construction, grading, excavations, use of fill, and foundation work including type of materials, design, procedures, etc. which are intended to limit the probability of occurrence and the severity of consequences from geological hazards. Necessary permits, plan checks, and inspections are generally required.

The City or County General Plan includes the Seismic Safety Element. The Element serves primarily to identify seismic hazards and their location in order that they may be taken into account in the planning of future development. The Uniform Building Code is the principle mechanism for protection against and relief from the danger of earthquakes and related events.

In addition, the Seismic Hazard Zone Mapping Act (Public Resources Code §§2690 – 2699.6) was passed by the California legislature in 1990 following the Loma Prieta earthquake. The Act required that the California Division of Mines and Geology (DMG) develop maps that identify the areas of the state that require site specific investigation for earthquake-triggered landslides and/or potential liquefaction prior to permitting most urban developments. The act directs cities, counties and state agencies to use the maps in their land use planning and permitting processes.

Local governments are responsible for implementing the requirements of the Seismic Hazards Mapping Act. The maps and guidelines are tools for local governments to use in establishing their land use management policies and in developing ordinances and review procedures that will reduce losses from ground failure during future earthquakes.

Discussion of Impacts

VI a. The turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities. Construction activities would only be required for installing DLN technology and enhancing existing steam or water injection and would involve minor changes to existing gas turbines. New structures must be designed to comply with the Uniform Building Code Zone 4 requirements since the proposed project is located in a seismically active area. The local cities and counties are responsible for assuring that the proposed project complies with the Uniform Building Code as part of the issuance of the building permits and can conduct inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The goal of the code is to provide structures that will: (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage, but with some non-structural damage; and (3) resist major

earthquakes without collapse, but with some structural and non-structural damage. The Uniform Building Code bases seismic design on minimum lateral seismic forces ("ground shaking"). The Uniform Building Code requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represent the foundation conditions at the site.

Facilities that will install DLN technology will be required to obtain building permits, as applicable, for all new structures at the site. The issuance of building permits from the local agency will assure compliance with the Uniform Building Code requirements which include requirements for building within seismic hazard zones. No significant impacts from seismic hazards are expected since the project will be required to comply with the Uniform Building Codes.

VII b. The turbines already exist and are located within the confines of existing facilities. Construction activities would only be required for installing DLN technology or enhancing steam or water injection and would involve minor changes to existing gas turbines. Therefore, the proposed amendments are not expected to result in substantial soil erosion or the loss of topsoil as no major construction activities would be required.

VII c – e. The turbines already exist and are located within the confines of existing facilities so no major construction activities are expected. The facilities already exist, therefore no additional structures would be constructed on a geologic unit or soil that is unstable or that would become unstable, or potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse. Likewise, no structure would be constructed on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property. Compliance with the Uniform Building Code would minimize the impacts associated with existing geological hazards. Construction would not affect soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater. Therefore, no impacts to geology and soils are expected due to the proposed project.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☑	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☑	☐

c)	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☑
d)	Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☑
e)	Be located within an airport land use plan or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
f)	Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☑

Setting

Many of the affected facilities handle and process large quantities of flammable, hazardous, and acutely hazardous materials. Accidents involving these substances can result in worker or public exposure to fire, heat, blast from an explosion, or airborne exposure to hazardous substances.

The potential hazards associated with industrial activities are a function of the materials being processed, processing systems, and procedures used to operate and maintain the facility. The hazards that are likely to exist are identified by the physical and chemical properties of the materials being handled and their process conditions, including the following events.

- **Toxic gas clouds:** Toxic gas clouds are releases of volatile chemicals (e.g., anhydrous ammonia, chlorine, and hydrogen sulfide) that could form a cloud and migrate off-site, thus exposing individuals. "Worst-case" conditions tend to arise when very low wind speeds coincide with an accidental release, which can allow the chemicals to accumulate rather than disperse.

- **Torch fires (gas and liquefied gas releases), flash fires (liquefied gas releases), pool fires, and vapor cloud explosions (gas and liquefied gas releases):** The rupture of a storage tank or vessel containing a flammable gaseous material (like propane), without immediate ignition, can result in a vapor cloud explosion. The "worst-case" upset would be a release that produces a large aerosol cloud with flammable properties. If the flammable cloud does not ignite after dispersion, the cloud would simply dissipate. If the flammable cloud were to ignite during the release, a flash fire or vapor cloud explosion could occur. If the flammable cloud were to ignite immediately upon release, a torch fire would ensue.

- **Thermal Radiation:** Thermal radiation is the heat generated by a fire and the potential impacts associated with exposure. Exposure to thermal radiation would result in burns, the severity of which would depend on the intensity of the fire, the duration of exposure, and the distance of an individual to the fire.

- **Explosion/Overpressure:** Process vessels containing flammable explosive vapors and potential ignition sources are present at many types of industrial facilities. Explosions may occur if the flammable/explosive vapors came into contact with an ignition source. An explosion could cause impacts to individuals and structures in the area due to overpressure.

For all affected facilities, risks to the public are reduced if there is a buffer zone between industrial processes and residences or other sensitive land uses, or the prevailing wind blows away from residential areas and other sensitive land uses. The risks posed by operations at each facility are unique and determined by a variety of factors. The facilities affected by the proposed amendments tend to be located in industrial areas which help minimize public exposure in the event of a release.

Regulatory Background

There are many federal and state rules and regulations that affected facilities must comply with which serve to minimize the potential impacts associated with hazards at these facilities.

Under the Occupational Safety and Health Administration (OSHA) regulations [29 Code of Federal Regulations (CFR) Part 1910], facilities which use, store, manufacture, handle, process, or move highly hazardous materials must prepare a fire prevention plan. In addition, 29 CFR Part 1910.119, Process Safety Management (PSM) of Highly Hazardous Chemicals, and Title 8 of the California Code of Regulations, General Industry Safety Order §5189, specify required prevention program elements to protect workers at facilities that handle toxic, flammable, reactive, or explosive materials.

Section 112 (r) of the Clean Air Act Amendments of 1990 [42 U.S.C. 7401 et. Seq.] and Article 2, Chapter 6.95 of the California Health and Safety Code require facilities that handle listed regulated substances to develop Risk Management Programs (RMPs) to prevent accidental releases of these substances, U.S. EPA regulations are set forth in 40 CFR Part 68. In California, the California Accidental Release Prevention (CalARP) Program regulation (CCR Title 19, Division 2, Chapter 4.5) was issued by the Governor's Office of Emergency Services (OES). RMPs consist of three main elements: a hazard assessment that includes off-site consequences analyses and a five-year accident history, a prevention program, and an emergency response program.

Affected facilities that store materials are required to have a Spill Prevention Control and Countermeasures (SPCC) Plan per the requirements of 40 Code of Federal Regulations, Section 112. The SPCC is designed to prevent spills from on-site facilities and includes requirements for secondary containment, provides emergency response procedures, establishes training requirements, and so forth.

The Hazardous Materials Transportation (HMT) Act is the federal legislation that regulates transportation of hazardous materials. The primary regulatory authorities are the U.S. Department of Transportation, the Federal Highway Administration, and the Federal Railroad Administration. The HMT Act requires that carriers report accidental releases of hazardous materials to the Department of Transportation at the earliest practical moment (49 CFR Subchapter C). The California Department of Transportation (Caltrans) sets standards for trucks in California. The regulations are enforced by the California Highway Patrol.

California Assembly Bill 2185 requires local agencies to regulate the storage and handling of hazardous materials and requires development of a plan to mitigate the release of hazardous materials. Businesses that handle any of the specified hazardous materials must submit to government agencies (i.e., fire departments), an inventory of the hazardous materials, an emergency response plan, and an employee training program. The information in the business plan can then be used in the event of an emergency to determine the appropriate response action, the need for public notification, and the need for evacuation.

Contra Costa County has adopted an industrial safety ordinance that addresses the human factors that lead to accidents. The ordinance requires stationary sources to develop a written human factors program that includes considers human factors as part of process hazards analyses, incident investigations, training, operating procedures, among others.

Discussion of Impacts

VII a-b. It is expected that the rule will lead to a reduction in NOx emissions. Facilities are expected to comply by installing DLN technology, increasing ammonia injection or enhance existing steam or water injection. The use of DLN and water or steam injection would not result in an increase in hazards associated with operation of the gas turbines.

Ammonia is used to react with the NOx, in the presence of a catalyst, to form nitrogen gas and water. Ammonia is considered to be a hazardous chemical. Ammonia has acute and chronic non-cancer health effects and also contributes to ambient PM10 emissions under some circumstances. Three facilities are expected to comply using increased ammonia injection. All three facilities currently use ammonia injection and, thus, currently have ammonia storage tanks, and currently transport ammonia to their facilities. Facilities can use either aqueous ammonia or anhydrous ammonia. The use of anhydrous ammonia involves greater risk than aqueous ammonia because it is stored and transported under pressure. In the event of a leak or rupture of a tank, anhydrous ammonia is released and vaporizes into the gaseous form, which is its normal state at atmospheric pressure and produces a toxic cloud. Aqueous ammonia is a liquid at ambient temperatures and gas is only produced when a liquid pool from a spill evaporates. Under current OES regulations implementing the CalARP requirements, aqueous ammonia is regulated under California Health and Safety Code Section 2770.1.

The proposed amendments to Rule 9-9 would require that three facilities use 3 percent to 10 percent more ammonia, which would increase the number of trucks needed to deliver ammonia. The proposed

amendments are expected to generate a maximum of one additional truck delivery of ammonia per day within the Bay Area. Deliveries of ammonia would be made by tanker truck via public roads. The transport of ammonia and other hazardous the Hazardous Materials Transportation (HMT) Act. The primary regulatory authorities are the U.S. Department of Transportation, the Federal Highway Administration, and the Federal Railroad Administration. The HMT Act requires transporters to follow specific safety standards and that carriers report accidental releases of hazardous materials to the Department of Transportation at the earliest practical moment (49 CFR Subchapter C). The California Department of Transportation (Caltrans) sets standards for trucks in California. The regulations are enforced by the California Highway Patrol.

The proposed amendments to Rule 9-9 are not expected to generate significant adverse hazard impacts because the increase in ammonia use within the Bay Area is small and limited to three facilities, and the numerous regulations that exist minimize the potential hazard impacts. Therefore, the impacts of the proposed project on hazards are expected to be less than significant.

VII c. The proposed rule amendments are expected to reduce NOx emissions from existing stationary gas turbines at affected facilities. The amendments to the rule will not require or change the use or storage of any hazardous material. The proposed amendment could result in additional ammonia emissions associated with ammonia slip from the three facilities that use ammonia injection. However, permit conditions are imposed on facilities that use ammonia injection so that no significant increase in ammonia slip is expected. Therefore, no increase in the potential for releases of hazardous materials and their related impacts to schools is expected.

VII d. No impacts on hazardous material sites are anticipated from the proposed rule amendments that would apply to existing operations. Some of the affected facilities may be located on the hazardous materials sites list pursuant to Government Code Section 65962.5. However, the proposed rule amendments would have no affect on hazardous materials nor would the amendment create a significant hazard to the public or environment. The stationary gas turbines already exist and are located within the confines of existing industrial facilities. The proposed rule amendments neither require, nor are likely to result in, activities that would affect hazardous materials or existing site contamination. Therefore, no impacts on hazards are expected.

VII e – f. No impacts on airports or airport land use plans are anticipated from the proposed rule amendments, which would apply to operations at existing facilities. The stationary gas turbines already exist and are located within the confines of existing industrial facilities. No construction activities are expected outside of the confines of the existing facilities and the facilities that expect to install DLN or enhance steam or water injection are not located near an airport. Therefore, no impacts on hazards at airports are expected.

VII g. No impacts on emergency response plans are anticipated from the proposed rule amendments that would apply to existing facility operations. Each affected facility has prepared an emergency response plan; however, the stationary gas turbines already exist and are located within the confines of existing facilities. The proposed rule amendments neither require, nor are likely to result in, activities that would impact the emergency response plan and minor construction activities for the installation of DLN or enhancements to steam or water injection are only required at a few facilities. Therefore, no impacts on emergency response plans are expected.

VII h. No increase in hazards related to wildfires are anticipated from the proposed rule amendments. The stationary gas turbines affected by the proposed amendments already exist and are located within the confines of existing facilities. These facilities have already been graded and appropriate fire barriers have already been created to minimize fire hazards. No increase in exposure to wildfires will occur due to the proposed amendments to Rule 9-9.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. HYDROLOGY AND WATER QUALITY.					
	Would the project:				
a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☑
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☑
c)	Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?	☐	☐	☐	☑
d)	Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?	☐	☐	☐	☑
e)	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☑
f)	Otherwise substantially degrade water quality?	☐	☐	☐	☑
g)	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☑

h)	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☑
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☑
j)	Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and affected environment vary substantially throughout the area and include commercial, industrial, residential, agricultural, and open space uses.

The facilities affected by the proposed rule amendments are located in the industrial portions throughout the Bay Area. Affected facilities are generally surrounded by other commercial and industrial facilities. Reservoirs and drainage streams are located throughout the area and discharge into the Bays. Marshlands incised with numerous winding tidal channels containing brackish water are located throughout the Bay Area.

The affected facilities are located within the San Francisco Bay Area Hydrologic Basin. The primary regional groundwater water-bearing formations include the recent and Pleistocene (up to two million years old) alluvial deposits and the Pleistocene Huichica formation. Salinity within the unconfined alluvium appears to increase with depth to at least 300 feet. Water of the Huichica formation tends to be soft and relatively high in bicarbonate, although usable for domestic and irrigation needs.

Regulatory Background

The Federal Clean Water Act of 1972 primarily establishes regulations for pollutant discharges into surface waters in order to protect and maintain the quality and integrity of the nation's waters. This Act requires industries that discharge wastewater to municipal sewer systems to meet pretreatment standards. The regulations authorize the U.S. EPA to set the pretreatment standards. The regulations also allow the local treatment plants to set more stringent wastewater discharge requirements, if necessary, to meet local conditions.

The 1987 amendments to the Clean Water Act enabled the U.S. EPA to regulate, under the National Pollutant Discharge Elimination System (NPDES) program, discharges from industries and large municipal sewer systems. The U.S. EPA set initial permit application requirements in 1990. The State of California, through the State Water Resources Control Board, has authority to issue NPDES permits, which meet U.S. EPA requirements, to specified industries.

The Porter-Cologne Water Quality Act is California's primary water quality control law. It implements the state's responsibilities under the Federal Clean Water Act but also establishes state wastewater discharge requirements. The RWQCB administers the state requirements as specified under the Porter-Cologne Water Quality Act, which include storm water discharge permits. The water quality in the Bay Area is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board.

In response to the Federal Act, the State Water Resources Control Board prepared two state-wide plans in 1991 and 1995 that address storm water runoff: the California Inland Surface Waters Plan and the California Enclosed Bays and Estuaries Plan. Enclosed bays are indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. San Francisco Bay, and its constituents parts, including Carquinez Strait and Suisun Bay, fall under this category.

The San Francisco Bay Basin Plan identifies the: (1) beneficial water uses that need to be protected; (2) the water quality objectives needed to protect the designated beneficial water uses; and (3) strategies and time schedules for achieving the water quality objectives. The beneficial uses of the Carquinez Strait that must be protected which include water contact and non-contact recreation, navigation, ocean commercial and sport fishing, wildlife habitat, estuarine habitat, fish spawning and migration, industrial process and service supply, and preservation of rare and endangered species. The Carquinez Strait and Suisun Bay are included on the 1998 California list as impaired water bodies due to the presence of chlordane, copper, DDT, diazinon, dieldrin, dioxin and furan compounds, mercury, nickel, PCBs, and selenium.

Discussion of Impacts

VIII a, f. No significant adverse impacts on hydrology/water quality resources are anticipated from the proposed rule amendments, which would apply to existing industrial facilities. The facilities affected by the proposed rule amendments are required to treat and monitor wastewater discharges, as applicable, from their facilities. The proposed rule amendments is expected to require additional water use for steam or water injection; however, not increase in wastewater discharge is expected. Therefore, no violation of any water quality standards or waste discharge requirements, and no decrease in water quality is expected.

VIII b. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. Facilities are expected to comply with installing DLN technology, increasing ammonia injection or enhanced steam or water injection. The steam or water injection option may result in a slight increase in water consumption. The 2005 Ozone Strategy addressed the impacts of control measures on water demand. The potential water demand associated with proposed control measures in the 2005 Ozone Strategy (including Control Measure SS-14) was determined to be within the capacity of water supplied from various sources in the Bay Area (estimated water demand of about 1,880 billion gallons per year in 2010) (BAAQMD, 2006) and is not considered significant compared with current and projected future demand and supply. While there are projected drought-year shortages in some regions of California, these shortages would occur regardless of the proposed control measures. The proposed amendments are not expected to deplete groundwater supplies or interfere with groundwater recharge. Therefore, no impacts on groundwater supplies or are expected due to the proposed Rule 9-9 amendments.

VIII c - f. Facilities are expected to comply with the proposed amendments to Rule 9-9 by installing DLN technology, increasing ammonia injection or enhanced steam or water injection. All affected facilities are

located in industrial and commercial areas, where storm water drainage has been controlled. The installation of DLN at one facility is expected to require minor construction activities; therefore, no major construction activities are expected to be required due to the proposed rule amendments. Therefore the proposed amendments are not expected to substantially alter the existing drainage or drainage patterns of the site, result in erosion or siltation, alter the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite. Nor are the proposed amendments expected to create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. The proposed amendments are not expected to substantially degrade water quality. Therefore, no impacts to storm water runoff are expected.

VIII g – i. The facilities affected by the proposed rule amendments are located within industrial and commercial areas. No major construction activities are expected and all construction activities will occur within the confines of existing facilities. Industrial and commercial facilities are generally located to avoid flood zone areas and other areas subject to flooding. The proposed amendments are not expected to place any additional structures within 100-year flood zones or other areas subject to flooding. Therefore, no impacts due to flooding are expected.

VIII j. The facilities affected by the proposed rule amendments are located within industrial and commercial areas. No major construction activities are expected and all construction activities will occur within the confines of existing facilities. The proposed amendments are not expected to place any additional structures within areas subject to inundation by seiche, tsunami or mudflow. Therefore, no impacts on hydrology/water due to seiche, tsunami or mudflow are expected.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX.	**LAND USE AND PLANNING.** Would the project:				
a)	Physically divide an established community?	☐	☐	☐	☑
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to a general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses.

The facilities affected by the proposed rule amendments are located in the industrial portions throughout the Bay Area. Most affected facilities are adjacent to industrial and commercial land uses.

Regulatory Background

Land uses are generally protected and regulated by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

IX a-c. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within heavy industrial areas. Facilities are expected to comply with Rule 9-9 by installing DLN technology, increasing ammonia injection or enhanced steam or water injection. Of these compliance methods, minor construction activities would only be required for installing DLN technology or enhancing steam or water injection. These construction activities would involve minor changes to existing gas turbines. No construction activities are expected outside of the boundaries of the existing industrial facilities where the gas turbines are located. Therefore, no impacts to land use are expected due to the proposed project.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area. The facilities affected by the proposed rule amendments are located in the industrial portions throughout the Bay Area.

Regulatory Background

Mineral resources are generally protected and regulated by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

X a-b. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. Construction activities are only expected at one facility and are expected to occur within the confines of the existing facility. The proposed rule amendments are not associated with any action that would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Therefore, no impacts on mineral resources are expected.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI.	**NOISE.** Would the project:				
a)	Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☑
b)	Expose persons to or generate of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☑
c)	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑
d)	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑

e)	Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑
f)	Be located within the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area. The facilities affected by the proposed rule amendments are located in the industrial portions throughout the Bay Area. Most affected facilities are surrounded by other commercial and industrial facilities.

Regulatory Background

Noise issues related to construction and operation activities are addressed in local General Plan policies and local noise ordinance standards. The General Plan and noise ordinances generally establish allowable noise limits within different land uses including residential areas, other sensitive use areas (e.g., schools, churches, hospitals, and libraries), commercial areas, and industrial areas.

Discussion of Impacts

XI a-f. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. The rule amendments impose limitations on the NOx emissions from stationary gas. Facilities are expected to comply with installing DLN technology, increasing ammonia injection or enhanced steam or water injection. Of these compliance methods, construction activities would only be required for installing DLN technology or enhancing existing steam or water injection. These construction activities would involve minor changes to existing gas turbines within an industrial area. Noise impacts during the construction period are expected to be minimal and occur during daylight hours. Noise related to construction activities would cease following completion of the construction phase. No increase is noise is expected due to operation of the modified equipment. All of the technologies that are expected to be used to comply with the proposed rule amendment are not expected to result in an increase in noise. Increased or enhanced ammonia, steam or water injection, is not expected to result in any physical changes to the facilities and would not generate additional noise. No increase in noise is expected related to DLN technology. Therefore, no impacts to noise are expected due to the proposed project.

		Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII.	**POPULATION AND HOUSING.** Would the project:				
a)	Induce substantial population growth in an area either directly (e.g., by proposing new homes and businesses) or indirectly (e.g. through extension of roads or other infrastructure)?	☐	☐	☐	☑
b)	Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑
c)	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area. The facilities affected by the proposed rule amendments are located in the industrial portions throughout the Bay Area.

Regulatory Background

Population and housing growth and resources are generally protected and regulated by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

XII a. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. Facilities are expected to comply with installing DLN technology, increasing ammonia injection or enhanced steam or water injection. Of these compliance methods, construction activities would only be required for installing DLN technology or enhancing steam or water injection. Construction activities are expected to be minor and the construction workers are expected to come from the existing labor pool within the Bay Area. The rule amendment is not expected to require any additional permanent workers at any of the effected facilities. No additional workers are expected to be required at the affected facilities; therefore no impacts to population or housing are expected due to the proposed project.

XII b-c. The stationary gas turbines already exist and are located within the confines of existing facilities within industrial areas. No housing would be impacted or removed by the proposed rule amendments and no displacement of housing would occur. Therefore, no impacts on population/housing are expected.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. PUBLIC SERVICES. Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
Fire protection?	☐	☐	☐	☑
Police protection?	☐	☐	☐	☑
Schools?	☐	☐	☐	☑
Parks?	☐	☐	☐	☑
Other public facilities?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area. The facilities affected by the proposed rule amendments are located in the industrial portions throughout the Bay Area.

Given the large area covered by the BAAQMD, public services are provided by a wide variety of local agencies. Fire protection and police protection/law enforcement services within the BAAQMD are provided by various districts, organizations, and agencies. There are several school districts, private schools, and park departments within the BAAQMD. Public facilities within the BAAQMD are managed by different county, city, and special-use districts.

Regulatory Background

City and/or County General Plans usually contain goals and policies to assure adequate public services are maintained within the local jurisdiction.

Discussion of Impacts

XIII a. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. Compliance with the proposed rule amendments is expected to be achieved using DLN technology, increasing ammonia injection or enhanced steam or water injection. Construction activities would only be required for installing DLN technology or enhancing steam or water injection and these construction activities are expected to be minor. The other affected facilities are expected to comply by making operational changes. The proposed rule amendments are not expected to require additional fire protection or police protection as facility modifications would occur within the confines of existing industrial areas. These facilities are generally fenced and entry is restricted to authorized individuals. The rule amendments would not require the use of any new chemicals or create new hazards. Therefore, no increase in the need for fire or police protection is required.

The proposed rule amendments are not expected to require additional workers at the facilities or result in population growth so no impacts on schools or parks are expected. Therefore, no impacts on public services are expected.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. RECREATION. Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.?	☐	☐	☐	☑
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that there are numerous areas for recreational activities. The facilities affected by the proposed rule amendments are located in industrial areas throughout the Bay Area. Public recreational land uses are generally not located within the confines of industrial facilities.

Regulatory Background

Recreational areas are generally protected and regulated by the City and/or County General Plans at the local level through land use and zoning requirements. Some parks and recreation areas are designated and protected by state and federal regulations.

Discussion of Impacts

XIV a-b. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. Construction activities would only be required for installing DLN technology or enhancing steam or water injection and construction workers are expected to come from the existing labor pool in the Bay Area. The proposed rule amendments are not expected to require additional permanent workers at the affected facilities or result in population growth so no impacts on recreation are expected. Therefore, no impacts on recreation are expected.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV.	**TRANSPORTATION/TRAFFIC.** Would the project:				
a)	Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☐	☑	☐
b)	Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☑	☐
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☑
d)	Substantially increase hazards because of a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☐	☑
e)	Result in inadequate emergency access?	☐	☐	☐	☑
f)	Result in inadequate parking capacity?	☐	☐	☐	☑

g)	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles). Transportation systems located within the Bay Area include railroads, airports, waterways, and highways. The Port of Oakland and three international airports in the area serve as hubs for commerce and transportation. The transportation infrastructure for vehicles and trucks in the Bay Area ranges from single lane roadways to multilane interstate highways. The Bay Area contains over 19,600 miles of local streets and roads, and over 1,400 miles of state highways. In addition, there are over 9,040 transit route miles of services including rapid rail, light rail, commuter, diesel and electric buses, cable cars, and ferries. The Bay Area also has an extensive local system of bicycle routes and pedestrian paths and sidewalks. At a regional level, the share of workers driving alone was about 68 percent in 2000. The portion of commuters that carpool was about 12.9 percent in 2000. About 3.2 percent of commuters walked to work in 2000. In addition, other modes of travel (bicycle, motorcycle, etc.), account for 2.2 percent of commuters in 2000 (MTC, 2004).

Cars, buses, and commercial vehicles travel about 143 million miles a day (2000) on the Bay Area Freeways and local roads. Transit serves about 1.7 million riders on the average weekday (MTC, 2004).

The region is served by numerous interstate and U.S. freeways. On the west side of San Francisco Bay, Interstate 280 and U.S. 101 run north-south. U.S. 101 continues north of San Francisco into Marin County. Interstates 880 and 660 run north-south on the east side of the Bay. Interstate 80 starts in San Francisco, crosses the Bay Bridge, and runs northeast toward Sacramento. Interstate 80 is a six-lane north-south freeway which connects Contra Costa County to Solano County via the Carquinez Bridge. State Routes 29 and 84, both highways that allow at-grade crossings in certain parts of the region, become freeways that run east-west, and cross the Bay. Interstate 580 starts in San Rafael, crosses the Richmond-San Rafael Bridge, joins with Interstate 80, runs through Oakland, and then runs eastward toward Livermore. From the Benicia-Martinez Bridge, Interstate 680 extends north to Interstate 80 in Cordelia. Caltrans constructed a second freeway bridge adjacent and east of the existing Benicia-Martinez Bridge. The new bridge consists of five northbound traffic lanes. The existing bridge was re-striped to accommodate four lanes for southbound traffic. Interstate 780 is a four lane, east-west freeway extending from the Benicia-Martinez Bridge west to I-80 in Vallejo.

Regulatory Background

Transportation planning is usually conducted at the state and county level. Planning for interstate highways is generally done by the California Department of Transportation.

Most local counties maintain a transportation agency that has the duties of transportation planning and administration of improvement projects within the county and implements the Transportation Improvement and Growth Management Program, and the congestion management plans (CMPs). The CMP identifies a system of state highways and regionally significant principal arterials and specifies level of service standards for those roadways.

Discussion of Impacts

XV a-b. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. Minor construction activities for the installation of DLN technology and enhancing existing steam or water injection technology are expected to occur, but no major traffic impacts are expected due to construction activities associated with the proposed rule amendments. The increased or enhanced ammonia option may result in a slight increase in ammonia deliveries (approximately one truck per day) within the Bay Area. This increase would not be expected to affect traffic patterns in the Bay Area or result in any adverse impacts at local intersections. Therefore, no impacts to traffic are expected.

XV c. The proposed rule amendments include minor modifications to the operation of existing facilities. The proposed rule amendments are not expected to involve the delivery of materials via air so no increase and no adverse impacts in air traffic are expected.

XV d - e. The proposed rule amendments are not expected to increase traffic hazards or create incompatible uses at or adjacent to the site. Emergency access provided at the industrial facilities, will continue to be maintained and will not be impacted by the proposed rule amendments.

XV f. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. The proposed rule amendments is only expected to require minor construction activities at some facilities and will only temporarily increase the number of workers at the facility. Parking required for construction workers is expected to be provided onsite. No increase in permanent workers is expected. Therefore, the proposed rule amendments will not result in impacts on parking.

XV g. The proposed rule amendments are not expected to result in any noticeable increase in traffic. Therefore, the proposed rule amendments are not expected to conflict with adopted policies, plans, or programs supporting alternative transportation modes (e.g., bus turnouts, bicycle racks).

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVI. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☑

b)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☑
c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☑
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements needed?	☐	☐	☑	☐
e)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☑
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☑
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area.

Given the large area covered by the BAAQMD, public utilities are provided by a wide variety of local agencies. The most affected facilities have wastewater and storm water treatment facilities and discharge treated wastewater under the requirements of NPDES permits.

Water is supplied to affected facilities by several water purveyors in the Bay Area. Solid waste is handled through a variety of municipalities, through recycling activities and at disposal sites.

There are no hazardous waste disposal sites within the jurisdiction of the BAAQMD. Hazardous waste generated at area facilities, which is not reused on-site, or recycled off-site, is disposed of at a licensed in-state hazardous waste disposal facility. Two such facilities are the Chemical Waste Management Inc. (CWMI) Kettleman Hills facility in King's County, and the Safety-Kleen facility in Buttonwillow (Kern County). Hazardous waste can also be transported to permitted facilities outside of California. The nearest

out-of-state landfills are U.S. Ecology, Inc., located in Beatty, Nevada; USPCI, Inc., in Murray, Utah; and Envirosafe Services of Idaho, Inc., in Mountain Home, Idaho. Incineration is provided at the following out-of-state facilities: Aptus, located in Aragonite, Utah and Coffeyville, Kansas; Rollins Environmental Services, Inc., located in Deer Park, Texas and Baton Rouge, Louisiana; Chemical Waste Management, Inc., in Port Arthur, Texas; and Waste Research & Reclamation Co., Eau Claire, Wisconsin.

Regulatory Background

City and/or County General Plans usually contain goals and policies to assure adequate utilities and service systems are maintain within the local jurisdiction.

Discussion of Impacts

XVI a, b, d and e. The stationary gas turbines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial areas. The proposed amendments will require installation of DLN technology, increased ammonia injection, or enhanced steam or water injection. The steam or water injection option may result in a slight increase in water consumption. The 2005 Ozone Strategy addressed the impacts on water demand. The potential water demand was determined to be within the capacity of water supplied from various sources in the Bay Area (estimated water demand of about 1,880 billion gallons per year in 2010) (CARB, 2000) and is not considered significant compared with current and projected future demand and supply. While there are projected drought-year shortages in some regions of California, these shortages would occur regardless of the proposed control measures. Based upon the above considerations, no significant adverse impacts on water demand were expected due to implementation of the control measures within the 2005 Ozone Strategy. Therefore, no significant impacts on water use are expected due to the proposed Rule 9-9 amendments. No significant adverse impacts on utilities and service systems are anticipated from the proposed rule amendments that would apply to existing facilities with stationary gas turbines.

The proposed rule amendment is not expected to generate additional wastewater generated by the affected facilities. The increase in water consumption would be associated with increased or enhanced steam injection. The incremental increase in steam use is not expected to generate additional wastewater streams. Therefore no impacts on wastewater treatment requirements or wastewater treatment facilities is expected.

XVI c. Facilities are expected to comply with installing DLN technology, increasing ammonia injection or enhanced steam or water injection. Of these compliance methods, construction activities would only be required for installing DLN technology or enhancing steam or water injection. These construction activities would involve minor changes to existing gas turbines. Therefore, no changes to or increases in storm water are expected due to the proposed rule amendments.

XVI f and g. The proposed rule amendments would not affected the ability of facilities to comply with federal, state, and local statutes and regulations related to solid waste. No significant impacts on waste generation are expected from the proposed rule amendments.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII.	**MANDATORY FINDINGS OF SIGNIFICANCE.**				
a)	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☑
b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☐	☐	☐	☑
c)	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☑	☐

Discussion of Impacts

XVII a. The proposed rule amendments do not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory, as discussed in the previous sections of the CEQA checklist. The proposed rule amendments are expected to result in emission reductions from facilities with stationary gas turbines thus providing a beneficial air quality impact and improvement in air quality. As discussed in Section IV, Biological Resources and Section V, Cultural Resources, no impacts are expected to biological or cultural resources.

XVII b. The proposed Rule 9-9 amendments are expected to result in emission reductions of NOx from affected facilities with stationary gas turbines, thus providing a beneficial air quality impact and improvement in air quality. The proposed rule amendments are part of a long-term plan to bring the Bay Area into compliance with the state ambient air quality standards for ozone, thus reducing the potential

health impacts due to ozone exposure. The proposed rule amendments do not have adverse environmental impacts that are limited individually, but cumulatively considerable when considered in conjunction with other regulatory control projects, including similar impacts from other NOx control projects. The proposed rule amendments are not expected to have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. No significant adverse impacts are expected.

XVII c. The proposed Rule 9-9 amendments are expected to result in emission reductions of nitrogen oxides from affected facilities with stationary gas turbines, thus providing a beneficial air quality impact and improvement in air quality. The proposed rule amendments are part of a long-term plan to bring the Bay Area into compliance with the state ambient air quality standards for ozone, thus reducing the potential health impacts due to ozone exposure. As discussed under **Section III. Air Quality and Section VII. Hazards and Hazardous Materials**, the proposed rule amendments have a potential to create odors from increased ammonia emissions, increase carbon monoxide emissions, create a slight increase in the amount of ammonia transported on public roadways, and, consequently, increase the hazard from a potential spill of ammonia during transportation. Each of these could have an impact on human health. However, as discussed in those sections, the small increase in ammonia usage and transport, existing permit conditions on turbines and existing law regarding transportation of hazardous materials would prevent any significant impacts from the proposed amendments.

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Chapter 4

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